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MENTAL RETARDATION ABSTRACTS

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U. S. Department of Health, Education, and Welfare
Social and Rehabilitation Service
Rehabilitation Services Administration
Division of Mental Retardation
Washington, D. C. 20201

Mental Retardation Abstracts is a quarterly publication of the Division of Mental Retardation, Rehabilitation Services Administration. It is a specialized information service designed to assist the Division in meeting its obligation to plan, direct and coordinate a comprehensive nationwide program for those with mental retardation and related handicaps. Specifically, this service is intended to meet the needs of investigators and other workers in the field of mental retardation for rapid and comprehensive information about new developments and research results and to foster maximum utilization of these results.

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MENTAL RETARDATION ABSTRACTS

Volume 7, Number 2 April-June 1970

TABLE OF CONTENTS

ABSTRACTS 199
BROAD ASPECTS OF MENTAL RETARDATION 199
MEDICAL ASPECTS 208
Diagnosis(General) 208
Prevention and Etiology (General) 214
Etiologic Groupings 216
Infections, intoxication, and hemolytic disorders 216
Trauma or physical agents 229
Disease or disorders of metabolism, growth, or nutrition 233
New growths 258
Prenatal influence 260
Gross brain disease (postnatal) 268
Psycho-environmental 272
Convulsive disorders 274
Chromosomal 279
Miscellany 291
DEVELOPMENTAL ASPECTS 294
Physical 294
Mental 297
Social and Emotional 305
Psychodiagnostics 311
TREATMENT AND TRAINING ASPECTS 319
Educational 319
Psycho-social 333
Occupational 337
Therapy 342
PROGRAMMATIC ASPECTS 350
Planning and Legislative 350
Community 355
Residential 363
Recreational 368
FAMILY 371
PERSONNEL 374
AUTHOR INDEX 381
SUBJECT INDEX 388

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Developmental Medicine & Child Neurology
Dissertation Abstracts
Education and Training of Mentally Retarded
German Medical Monthly
Helvetica Paediatrica Acta
International Journal of Neuropsychiatry
Journal of Applied Behavior Analysis
Journal of Clinical Endrocrinology and Metabolism
Journal of Comparative and Physiological Psychology
Journal of Consulting and Clinical Psychology
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Journal of the American Medical Association
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Psychological Bulletin
Psychological Monographs
Psychological Record
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Psychological Review
Rehabilitation Literature
Science
Training School Bulletin

NOTE: Publications scanned regularly for articles pertinent to mental retardation will be listed in the final issue of each volume.

612 RICHARDS, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 982 p. $20.00.

This collection of papers represents a multidisciplinary approach to new understandings of the international problem of mental deficiency and the needs of the handicapped person. A recurrent theme is the rights and dignity of the mentally deficient individual. There is universal concern about the dehumanizing effects of institutionalization. Descriptions of new approaches used in various countries include: experimental architectural designs, community care, and care of the retarded child living at home. Educational, sociocultural, nutritional, biochemical, and genetic aspects of mental deficiency are discussed. Emphasis throughout is on problem solving through the combined efforts of a team of experts, including a psychiatrist, a psychologist, a social worker, an educator, a physician, a nurse, a pediatrician, and an architect. New facilities for this multidisciplinary approach to the care, education, and training of the mentally handicapped in many countries are described. Problems encountered in the application of experimental findings in the classroom or residential facility are discussed. The hope that each retarded child will be educated and trained to his highest potential is repeatedly voiced. This report would be of interest to psychologists, psychiatrists, educators, physicians, nurses, social workers, pediatricians, and to all professional personnel involved in the area of MR. (1,011 refs.) - *M.G. Conant.*

613 Declaration des Droits generaux et particuliers des Deficients Mentaux (Declaration of the general and particular rights of the mentally deficient). Proceedings of the 4th Congress of the International League of Societies for the Mentally Handicapped, held in Jerusalem, Israel, October 20-26, 1968. *Amentia*, (December):1-2, 1968.

A declaration of independence for the mentally handicapped was presented at a meeting of the International League of Societies for the Mentally Handicapped and included 7 specific articles pertaining to the rights of MRs. MRs should have the overall fundamental equality enjoyed by their normal peers. They have a right to medical, educational, therapeutic, and vocational programs, and should not be deprived of them because of lack of funds. MRs have rights to economic security and the opportunity to become worthwhile members of the community; to as normal a family life as possible; to care and treatment by qualified personnel who do not degrade, abuse, or take advantage of them; and to legal judgments to determine their degree of responsibility. When MRs cannot adequately convey their own wishes or if limitation of their rights is required, the procedures used should prevent abuse and maintain respect. (No refs.) - *V.R. Shaffer.*

614 IMRE, P.D. The epidemiology of mental retardation in a S.E. rural U.S.A. community. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 655-660.

Preliminary data from an ongoing epidemiologic study of MR in a low socioeconomic rural American community is presented. All persons aged 1-59 years were screened and clinically examined. The total population (17,330) was simultaneously enumerated and demographic variables were measured individually and at the family level. All those with IQs below 79 were retested at least twice. The rate of MR (IQ 0-69) peaked in the 15-59 year age group, and the rate for whites was significantly lower than that for non-whites. The rate of MR increased with descending socioeconomic class, with that of the lowest class exceeding that of the highest class by a factor of 70. The rate of SMR (IQ 0-49) peaked in the 15-19 year age group and increased with decreasing socioeconomic class. About 10% of all MRs were SMR. Further observation and testing over a 5-year period are planned. (3 refs.) - *M.G. Conant.*

615 ROUILLON, ANNIK. Enquete sur les enfants atteints de debilite mentale (Inquiry into mental retardation in children). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 664-679.

School age children (CA 6-14 yrs) in a rural area of France were surveyed for MR and/or behavioral problems by contacting school officials, health or social agencies, physicians, and institutions. Index cases (3,772) were discovered and a non-representative sample of 89 Ss were chosen for preliminary investigation. These Ss were examined by a social worker, a psychologist, a psychiatrist, and a pediatrician, with 28

children examined by all 4 members of the team. Of the 51 Ss seen by the psychologist, 9 had IQs above 90. Of the 28 children examined by all examiners, it was recommended that 20 be kept at home and that 13 be employed in the normal sector of production. Good correlations were obtained between prognosis and parental attitude as judged by the pediatrician and the psychiatrist in the former case and the social worker in the latter. (No refs.) - *M.G. Conant.*

616 KUSHLICK, A., & COX, GILLIAN. The ascertained prevalence of mental subnormality in the Wessex region on 1st July, 1963. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 661-663.

The 6,161 MR Ss in the Wessex region of England known to agencies dealing with the subnormal as of July 1, 1963 were classified independently as to IQ, social and physical incapacity, speech, self help and literacy, employability, and medical classification. The age-specific rate of SMR rose from 0.53/1,000 at age 0-4 years to 3.65/1,000 at age 15-19 years. The latter rate is a reasonable estimate of the true prevalence of SMR and can be used in the planning and development of services. Of 273 retarded adults, 141 (including 84 SMRs) were institutionalized. At least 1/2 of the SMR did not need the continual skilled medical or nursing care provided in a hospital, and 40% were classified on employment as at least of considerable help. Down's syndrome was the main clinical condition, and accounted for 28% of the SMR in the age group 15-19 years. (13 refs.) - *M.G. Conant.*

617 AKESSON, HANS OLOF. *Severe Mental Deficiency in Sweden: A Demographic, Clinical and Genetic Analysis.* (Translated by Helen Frey.) Stockholm, Sweden, Laromedelsforlagen Akademifoorlaget, 1968, 41 p. (Price unknown).

An investigation of the prevalence of severe mental deficiency in a population of 17,303 inhabitants of a rural area in Sweden disclosed that 105 individuals, or 0.61%, were SMR. Criteria used to define SMR were an IQ under 3 times the standard deviation below the mean on the Swedish version of the Revised Stanford-Binet scale, form L, and, for Ss over 18, conclusive evidence of MR before the age of 18 years. Eighty-six individuals had IQs between 20 and 52, and 19 had IQs below 20. Fifty-one MRs lived at home and 54 were institutionalized. Thirty-eight Ss had never been in contact with an institution for the MR, and only one had been accused of a crime. Of the 91 MRs over 15 years of age, 5 were gainfully employed, and 32 others performed some type of regular, but unpaid and unproductive work. Analysis of the etiology of MR revealed 4 cases which were probably due to external injury, 13 of Down's syndrome, 2 of cretinism, 1 of Rh encephalopathy, 1 of cutis verticis gyrata, and 84 of unknown origin. Forty-two Ss had no visible deformity or neurologic disorder. There were 11 cases of spastic paralysis, and 22 of epilepsy. Eye defects were in evidence in 19 Ss, and 14 Ss exhibited various other physical and neurologic defects. Genetic analysis of idiopathic cases who had siblings under 5 years of age revealed a significantly high maternal age, an almost significantly high paternal age, an over-representation of twins, and a significantly high frequency of SMR among siblings. Parents evidenced a normal number of first-cousin marriages, and a normal frequency of both mild and severe MR. This report should be of interest to physicians, geneticists, public health personnel, psychiatrists, and psychologists. (44 refs.) - *J.K. Wyatt.*

CONTENTS: Previous Research on Frequency of Mental Deficiency; and Present Study.

618 MILGRAM, NORMAN A. The rationale and irrational in Zigler's motivational approach to mental retardation. *American Journal of Mental Deficiency*, 73(4):527-532, 1969.

This paper acknowledges the important theoretical and practical contributions of Edward Zigler's motivational approach to MR, but criticizes his characterization of a dichotomy between a motivational approach and a cognitive or so-called defect or difference approach. His view that differences in performance between retardates and MA-matched normals are to be attributed to motivational rather than cognitive factors is questioned. It is suggested that the notion of mutually exclusive explanations for differences in MA-matched groups is not intrinsic to Zigler's work and could be discarded without jeopardizing any of his major theoretical formulations. (9 refs.) - *Journal abstract.*

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619 LELAND, HENRY. The relationship between "intelligence" and mental retardation. *American Journal of Mental Deficiency*, 73(4):533-535, 1969.

An appropriate classification system must take into consideration both bookkeeping and diagnostic needs. Such a system must serve the person being classified. It must be relevant to the treatment, training, or rehabilitation needs of the specific individual. It is not to our advantage to dichotomize MR groups based on presumed etiologies. Most of the MR with whom we have knowing contact are so labeled because of maladaption and behavioral difficulties. The only serviceable classification system is one which groups individuals by their ability to cope with specific critical demands and which provides a guide to the modification and reversal of these behaviors. (3 refs.) - *Journal abstract.*

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620 ZIGLER, EDWARD. Developmental versus difference theories of mental retardation and the problem of motivation. *American Journal of Mental Deficiency*, 73(4):536-556, 1969.

The point is made that the essential controversy concerning MR in which Zigler has been engaged is not one between motivational and cognitive viewpoints. The theoretical argument is rather between 2 cognitive approaches: a developmental position, on the one hand, and a difference position, on the other. Both of these positions are described, and the differential predictions stemming from them are noted. The relevance to the developmental-difference controversy of the MA measure, motivational factors and the 2-group approach to MR is discussed. (58 refs.) - *Journal abstract.*

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621 ELLIS, NORMAN R. A behavioral research strategy in mental retardation: Defense and critique. *American Journal of Mental Deficiency*, 73(4):557-566, 1969.

The purpose of this paper is to describe, defend, and criticize a behavioral research strategy in MR. A few embryonic theories of retardate behavior have emerged. Zigler has labeled these "psychometric," "defect," and his own, "developmental, cognitive, and motivational." Analysis of Zigler's position shows that it, too, is a defect or difference approach, and that distinctions between these 2 strategies lack substance. The present author adopts the defect or difference approach, noting that defects or differences refer to differences in contemporary behavior of retardates. Moreover, MA, IQ, or developmental level however defined, is rejected as an explanation of behavior. Such explanations are used by Zigler in his developmental approach. The theoretical significance of differences between a normal child and an adolescent, or adult retardate, of equal MA is questioned. The paper attempts to rebut the criticisms of the difference orientation made by Zigler and his associates. (11 refs.) - *Journal abstract.*

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622 SMITH, ROBERT M., & NEISWORTH, JOHN T. Some problems of and prospects for research in mental retardation. *Mental Retardation*, 7(1):25-28, 1969.

The value of research with the MR is restricted by the use of non-representative samples in unnatural settings. Much past research has been with institutionalized retardates in laboratory situations rather than with the vast majority of retardates who live in the community. Research has generally failed to identify and analyze interaction effects (the differential effects of a variable on specific subpopulations). This failure can lead to erroneous conclusions. The lack of longitudinal studies restricts the little knowledge which is currently available. Ongoing research areas which show promise are early intervention, sequentially based curricula, parent education and training, and individualized and machine assisted instruction. Three potentially revolutionary areas which may suggest future research trends are computer based diagnosis and prescription, behavior modification, and biological bases for altering behavior. The use of interdisciplinary approaches in the study of all areas of MR would greatly increase the value of research. (No refs.) - *J.M. Gardner.*

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623 SZUREK, S.A., & BERLIN, I.N., eds. *Psychosomatic Disorders and Mental Retardation in Children.* (Langley Porter Child Psychiatry Series, Volume 3.) Palo Alto, California, Science and Behavior Books, 1968, 306 p. $6.95.

There is no clear division between behavioral and physiological functioning. It is well known that a person's physical condition affects his emotions and that his emotions affect his physiology. This is equally true among the MR, as documented by work done at the Langley Porter Neuropsychiatric Institute. Included in this collection of theoretical, clinical, and research articles are: discussions of the problems of misconception in the diagnosis, education, and management of MR children; papers on the etiology of emotional and learning problems in MR children; theoretical ideas about diagnosis and treatment; and clinical case studies. Papers on the consultation process emphasize adequate communication of factual knowledge about behavior, awareness of biological factors, and sensitivity to the evaluation and communication of complex emotional factors. This book should be of interest to psychiatrists, psychologists, pediatricians, and students of child psychotherapy. (295 refs.) - *J.M. Gardner.*

CONTENTS: Psychosomatic Disorders of Childhood: Some Genetic Considerations; Psychosomatic Disorders of Childhood: Diagnosis and Treatment; Mental Retardation of Various Etiology; and Case Studies.

624 KOHLER, CLAUDE. *Jeunes Deficients Mentaux: De l'enfance a l'age adulte* (Young Mental Deficients: From Infancy to Adulthood). Brussels, Belgium, Charles Dessart, 1967, 445 p. (Price unknown).

Based on the author's 20 years of research and experience in the field of MR, currently existing problematic aspects of MR are classified and presented according to specific deficiency, stage of deficiency (including neonate, preschool, school-age, adolescent, and young adult), and order of importance. The rehabilitation, self-development, and self-satisfaction of the MR are recognized as important facets in social, sexual, and emotional fulfillment; however, consequences of possible failure and other dangers are considered. This book—the first of its type written in French—is a generalization of psychosomatic characteristics in MRs, how they evolve from birth to adulthood, and the role of society in aiding the mentally deficient. It should be of interest to parents of MRs,

pediatricians, and persons directly involved in the field. (63 refs.) - *V.R. Shaffer.*

CONTENTS: The Mental Deficient Through the Centuries—Recalled Historically—Actual Perspectives; General Notions: From the Metric Ladder of Intelligence to the Second System of Signalization and the Psychoanalytic Cure; Essay of Definitions of the Mentally Deficient; The Markings of the Route of the Mentally Deficient Toward the Adult State; The Plan of Action and Its Participants; The Doors—Will They Remain Closed? TheHopes and Fears of the First Years; The Doors—They Open; The Ways of the Adolescent; Toward the Trade, Orientation and Professional Formation of the MR Adolescent; The Work—Promotion of the Profoundly MR Adolescent; The Young MR Adult: Work, Family, and Marriage; The Young Profoundly MR: Certainties and Unknowns; and Questions in the Concluding Material.

625 PHILIPS, IRVING. Common misconceptions concerning mental retardation. In: Szurek, S.A., & Berlin, I.N., eds. *Psychosomatic Disorders and Mental Retardation in Children.* (Langley Porter Child Psychiatry Series, Volume 3.) Palo Alto, California, Science and Behavior Books, 1968, p. 144-152.

There are an estimated 5 million MR individuals in the United States today. MR affects twice as many people as blindness, polio, CP, and rheumatic heart disease combined. It is important that the public become aware of the problem of MR and that misinformation which may lead to public apathy or negative attitudes be corrected. Some common misconceptions about MR are: all MRs are alike, except for degree; MR is permanent and irreversible; MRs are subject to delinquency, crime, and sexual aberrations; all MRs belong in institutions; and the etiology of MR is based on either organic defect or heredity. (2 refs.) - *J.M. Gardner.*

626 TRI-STATE COMPREHENSIVE PLANNING AND IMPLEMENTATION PROJECT FOR MENTAL RETARDATION. *A Survey of Attitudes Toward Mental Retardation.* Cincinnati, Ohio, 1968-1969, 77 p. (Price unknown).

One hundred and thirteen residents of Ohio, Kentucky, and Indiana were selected by random sampling techniques and interviewed about their knowledge of and attitude toward the retarded. Ss were mainly middle income, married women. Most respondents were not knowledgeable in regard to MR. Only 2.5% spontaneously mentioned levels of retardation. In terms of definition, low IQ was mentioned by 30% of the respondents, followed by lack of ability (21%) and problems associated with the brain (17%) or mind (12%). Birth injury and heredity were the most prominent causes mentioned. Only 39% believed that MR can be prevented. In terms of community involvement, almost 50% had never participated nor been asked to participate in MR programs or drives. Fifty-nine percent had no knowledge of MR associations in their area, and 63% did not know the name and location of their state institution. The family doctor was seen as the chief referral source. Attitudes toward the retarded were generally favorable. An effort should be made to approach the large core of educated and cooperative persons who are basically uninformed or neutral concerning MR. (162-item bibliog.) - *J.M. Gardner.*

627 BREITENMOSER, A. Begegnung mit dem geistig Behinderten (Contacts with the mentally retarded). *Lebenshilfe,* 7(1):1-8, 1968.

Although the MR are no longer invisible members of our society, they often remain isolated because of their inability to communicate and because the average person is unwilling to attempt to break down the communication barrier. One of the greatest fallacies of normal individuals is the feeling that one must lower one's self to the level of the MR in order to communicate with them. This "sal pitie'" (filthy pity) degrades and dehumanizes both MRs and normals. Normal persons must realize that people are equals simply because all are human beings. Even if communication through speech is impossible, it can be accomplished through emotional empathy, respect for the privacy of the individual, and a willingness to become totally committed to the establishment and preservation of such a relationship. (No refs.) - *S.L. Hamersley.*

No address

628 VANIER, JEAN. Toi aussi, tu es une personne humaine (You also, you are a human being). *Deficience Mentale/Mental Retardation,* 17(3-4):3-7, 27, 1967-68.

This philosophical discussion of the dignity of the human person takes the position that, in addition to being a person of knowledge and action, man is a being made to love and commune with other beings. The term feeble used in reference to MRs is inappropriate because feebleness may be found in some form in all humans. The exclusion of mentally handicapped persons from society because their deficiencies at birth make them different and therefore inhuman is inconsistent in that this criteria would necessitate regarding an adult amputee as inhuman because of physical deficiencies. The human qualities of several PMRs—generosity, friendliness, affection, and response to music—are presented as proof that MRs possess "intelligence of the heart." Because society tends to repulse and misunderstand any person or object which deviates from the norm, MRs may be labeled as inhuman; however, MRs are entitled to human rights—specialized education, vocational training, medical care, and family and social relationships—which will enable them to function in society as worthwhile human beings. (No refs.) - *V.R. Shaffer.*

No address

629 *Organization of Services for the Mentally Retarded: Fifteenth Report of the WHO Expert Committee on Mental Health.* (World Health Organization Technical Report Series Number 392.) Geneva, Switzerland, World Health Organization, 1968, 55 p. $1.00.

The World Health Organization Expert Committee on Mental Health met for a week in 1967 to detail the

world MR situation and make recommendations for the future. Classification of the MR is difficult because of different cultural standards and demands. The IQ ranges of the subclassifications of MR established by the Committee are: mild MR—IQs of 50-70; moderate MR—IQs of 35-50; SMR—IQs of 20-35; and PMR—IQs below 20. Classification should be based on both IQ and social factors. Each MR should be examined as to cause of deficiency so that treatment and prevention programs can be initiated. Total education is the key to treatment and an overall education plan should be developed for each child. Vocational and social education lead to rehabilitation. Family education aids understanding and guidance. The education of personnel promotes an effective team approach to treatment. Public understanding speeds integration of services into community facilities. Research on the biological causes of MR and behavioral treatment is advancing. International organizations are dealing with MR and should integrate their aims. The MR have a right to the best treatment available and should be given maximum education and family understanding instead of segregation and institutionalization. (16 refs.) - *M. Plessinger.*

CONTENTS: Mental Retardation Problems and the Changing Outlook; Criteria, Classification and Nomenclature; Etiology, Case-finding and Prevention; Medical Aspects; Education and Training of Mentally Retarded Children; Vocational, Social and Welfare Aspects; Development of Services; Education and Training of Personnel; Educating and Informing the Public; Special Problems in Developing Countries; Research, Role of International Organizations; and Recommendations.

630 NATIONAL SOCIETY FOR AUTISTIC CHILDREN. Autistic children: Innocents at risk. London, England, November, 1968, 13 p. Mimeographed.

Since its formation in 1962, the National Society for Autistic Children has advocated special units and teaching for the autistic child so that the estimated 3,000 autistic children in England and Wales need not suffer life-long institutionalization in facilities for the MR. In schools where these children receive an unusual amount of individual instruction and attention to social and emotional needs, almost all improve their behavior to a level of productive work or are at least able to live outside an institution. Autism must be included among the categories of handicap eligible for special education. Facilities must be developed (only 21 now exist, 18 of which are in the London area), and parents must be encouraged to forego self-blame and seek education for these children. (No refs.) - *E. L. Rowan.*

631 MASOVIC, S. Society and the adolescent retardate. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 628-631.

The complete integration of the retarded adolescent in society is possible only through adequate employment, which requires that present methods of social and vocational training be reorganized and presented more scientifically. Vocational rehabilitation should be more universally available. Legal rights of the retarded adolescent are also problem areas and systematic reorganization is needed with attention to individual rights. Public awareness of the problems presented by retarded adolescents also must be increased. (21 refs.) - *M.G. Conant.*

632 Youth conference in Skovde, Sweden: Retarded young adults discuss activities, education and employment. *Journal of the Scottish Society for Mentally Handicapped Children*, 3(1):1-3, 1968.

Twenty adolescent MRs (CA 18-30 yrs) representing 8 MR organizations voiced their opinions regarding leisure time activities, vocational training, and employment at a 3-day youth conference held in Skovde, Sweden. The conference was conducted by a university student experienced in the MR field. The young adult MRs were instructed on how to conduct and participate in discussions and were then divided into 4 groups. Each group was given a different discussion topic upon which an MR chairman later reported to the whole conference. A summary of the discussions of each group was reported to the National Conference by 2 MRs. Representatives desired: varied leisure-time activities; narrower age-span groups in leisure time activities; participation in decisions regarding leisure-time activities; more intensified, higher quality, and more varied vocational preparation; the institution of a student council; and the provision of appropriate jobs with sufficient salaries upon completion of vocational habilitation. (No refs.) - *V. R. Shaffer.*

633 ASSOCIATION FOR CHILDHOOD EDUCATION INTERNATIONAL. *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, 64 p. $1.25.

The international existence and effects of malnutrition are analyzed and presented in the form of studies, research, and inquiries, with suggestions for prevention and elimination of malnutrition. Inadequate maternal diet adversely affects fetal and infant development, causes irreversible brain damage, and often results in intellectual impairment. Kwashiorkor and marasmus, which often occur in families of low socioeconomic status, are prevalent types of malnutrition in young children. Even in the affluent American environment, malnutrition, compounded by social and psychological factors, is found in large sectors of society. It is determined that educators are the key to the solution of the problem. They must provide nutritionally adequate lunch programs, intensify efforts in the area of health education, and provide future generations with knowledge and a sense of anticipation of the problem of malnutrition in order to eliminate it. (18-item bibliog.; 60 refs.) - *V.R. Shaffer.*

CONTENTS: Hunger in America: Scope and Consequences (Frost & Payne); Hunger U.S.A.: The Citizens' Board of Inquiry into Hunger and Malnutrition; Nutrition and Intellectual Development in Children (Winick); Maternal Diet, Growth and Behavior (Simonson & Chow); International Nutrition and Later

Learning (Latham); Medical Care of Children in Poland (Suchara); Nutritional Prospects for the Future (Rosenfield & Stare); The Role of the School in Providing for Nutrition (Cronan); Conservation, Resources and Education (Brennan).

634 FROST, JOE L., & PAYNE, BILLY L. Hunger in America: Scope and consequences. In: Association for Childhood Education International. *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, p. 5-18.

The irreversible effects of malnutrition, including kwashiorkor and marasmus, upon prenatal and infant development are discussed, and analyses of research on malnutrition in American children are presented. Reports indicate that a large percentage of MRs are born to low socioeconomic families; in this environment, corrective measures are negligible and the state of MR is consequently nurtured. Children with kwashiorkor who survive beyond their third year are physically and mentally impaired; marasmus is considered more dangerous because it occurs in younger infants and is usually undetected by mothers. Social and psychological factors, such as lack of stimulation and encouragement to explore the environment and deprivation of affection compound the retardation caused by brain damage resulting from malnutrition. The existence, adverse effects, national scope, and emergency state of malnutrition in America call for immediate and drastic action. The monetary costs of prevention are much less than those of treating the resultant diseases. Educators hold the key to the elimination of malnutrition in that they can provide future generations with appropriate information about good health. (18-item bibliog.) - *V.R. Shaffer.*

635 CITIZENS' BOARD OF INQUIRY INTO HUNGER AND MALNUTRITION. Hunger U.S.A. In: Association for Childhood Education International. *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, p. 19-24.

The Citizens' Board of Inquiry into Hunger and Malnutrition estimated that over 10 million Americans suffer from hunger and malnutrition and that the problem is increasing yearly. Federal programs are reported to reach only about 18% of the poor. To alleviate this situation, the Board advocates proper administration of federally supported programs such as free school lunches and food stamp programs. Eligibility should be determined by income, the nutritional needs of dependents, and medical expenses. These programs should have the priority of a national emergency with a commitment equal to space and highway programs. Drastic changes in the distribution of federally allocated funds are needed to remedy the situation. (No refs.) - *V.R. Shaffer.*

636 LATHAM, MICHAEL C. International nutrition and later learning. In: Association for Childhood Education International. *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, p. 33-42.

Various studies involving statistical analysis, animal experiments, and human development confirm an association between malnutrition and physical and intellectual development in humans. Statistics show that 750 million children throughout the world are suffering from malnutrition, primarily kwashiorkor and marasmus. The mortality rate may exceed statistical figures because death is not directly attributed to malnutrition but rather to diseases resulting from it. Results of animal studies, which show that malnutrition hinders development of the CNS, thwarts exploratory interest, and decreases learning, can be extrapolated to human development. Controlled longitudinal studies of humans reveal that the IQs of malnourished children have been raised an average of 18 points (Kuhlman-Binet; Stanford-Binet) when adequate diets are provided. Village studies and research projects are currently being conducted, and it is hoped that the results will provide substantial confirmation of the relationship between malnutrition and intellectual development. (31 refs.) - *V.R. Shaffer.*

637 ROSENFIELD, DANIEL, & STARE, FREDRICK, J. Nutritional prospects for the future. In: Association for Childhood Education International. *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, p. 45-50.

A deficiency in one or any combination of the 6 main groups of nutrients—protein, fat, carbohydrates, minerals, vitamins, and water—produces malnutrition of some type. An estimated 50% of the children in the world suffer from protein deprivation. The population in developing countries in Asia, Central America, and North Africa subsists primarily on grain; however, grain (a good source of protein) often fails to provide one or more of the essential amino acids. Meat contains all of the 8 amino acids essential to human development as well as all of the non-essential amino acids; therefore, meat protein is necessary for nutritional adequacy. Alternate methods of providing increased protein sources include: genetic manipulation of the photosynthesis process; fortification of foodstuffs with amino acids, protein concentrates, vitamins, and minerals; and development of new low-cost protein foods. (No refs.) - *V. R. Shaffer.*

638 CRONAN, MARION L. The role of the school in providing for nutrition. In: Association for Childhood Education International. *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, p. 51-58.

Various studies indicate that children's good eating and dietary habits diminish as they mature, primarily because of relinquishment of parental control and guidance. Organizations such as the Committee on School Lunch Participation advocate "a universal free school lunch program"; however, even though over 50 million dollars was added to the lunch program in 1968, approximately 9 million children have no access to school lunch programs. Social changes intensify the need to combat improper diets in school age children; working mothers are unable to prepare daily hot lunches, and children have nearly unrestricted access to cafeterias, restaurants, and vending machines. The affluence in the United States does not solve the malnutrition problem, for quantity of food has no bearing on nutritional value; therefore, it is essential

that people be taught the importance of nutritionally adequate diets. School lunch programs should be administered through agencies concerned with nutrition. Food-testing parties in the classroom, graphically illustrated with animal feeding projects, and individual example can be used to illustrate the importance of proper nutrition. (No refs.) - *V.R. Shaffer.*

639 BRENNAN, MATTHEW J. Conservation, resources, and education. In: Association for Childhood Education International. *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, p. 59-63.

The present generation of education-age young adults rejects delusions of American grandeur and infallibility and calls for total education which will provide a better understanding of the earth environment and the concept of conservation, especially as it relates to the alleviation of malnutrition and possible future starvation. Understanding, anticipation, and manipulation are man's tools for the development of scientific, social, and humanitarian methods to counteract future malnutrition. Young adults with the aid of proper education are the key to success in the investigation and elimination of nutritional problems. This will require the provision of a balance between the supply of world energy and numerically increasing human needs. (No refs.) - *V.R. Shaffer.*

640 DE LORENZO, ELOISA GARCIA ETCHEGOYHEN. Architectural design in the planning of services for special education. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 698-700.

MR is a problem with multiple aspects and the focusing of these aspects needs the cooperative efforts of a multidisciplinary team of specialists in their own fields. The architect should be a member of this team since the architectural design of a building is an essential part of the good adaptation of the MR pupil. Comparative studies have shown that treatment of similar groups with similarly trained staffs is facilitated and shows better results in an adequately designed environment. (No refs.) - *M.G. Conant.*

641 MARTIN DU GARD, J.P. L'organisation architecturale dans l'arrieration mentale: Possibilities de jour (Architectural planning in mental retardation: Today's possibilities). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 695-697.

Architectural considerations are discussed for a medico-pedagogical institute housing 90-150 moderately MR children. The facility should be located in or near a friendly city so that the handicapped children will be able to take advantage of its benefits and so that vocational rehabilitation will be facilitated. The classrooms should accommodate 12-15 children, be separate, and contain movable equipment. Other important items to consider in planning such a facility are a gymnasium, areas for motor reeducation and physical therapy, dining areas, and a medico-social section. (No refs.) - *M.G. Conant.*

642 BAYES, K. Architectural planning in mental retardation. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 780-783.

Environmental research in MR is an interdisciplinary task requiring the concerted efforts of the architect, the psychiatrist, the psychologist, the sociologist, the educator, and others. The needs of the MR should always be primary. Activities in the area of research for architecture are cited, including those of Ittelson, Good, Osmond and Izumi, Berenson, and Bailey and Taylor. Further studies on the therapeutic effect of environment are needed. (18 refs.) - *M.G. Conant.*

643 GEURSEN, T.J. Architectural planning and mental retardation. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 692-694.

The problems encountered in the building of a structure for normal or MR children can be minimized by using a method which involves the development of functional and/or technical prototypes. The experience gained during the execution and use of the buildings is recorded and published as well as the results of the developmental work. For the execution of the buildings, a team of experts, comprised of the principal, advisors for the program of requirements, the architect, and the contractor, should work together. The use of such a method has the advantage of each specialist's requirement being considered immediately by the other specialists; thus, there is balancing of contradictory requirements, and the cost is controlled from the beginning. (No refs.) - *M. G. Conant.*

644 EJLERS, E. Architectural planning in mental retardation (residential facilities). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Retardation*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 583-587.

In Denmark, there are approximately 20,000 individuals in the care of the Retardation Service, and for the 10,000 of them that are institutionalized, existing facilities are inadequate. At the present time, old buildings are being renovated or torn down and replaced with new homes. These new residences are much smaller

and are designed for spastic or invalid children or as a kind of nursing home with a normal family atmosphere. The maintenance of human dignity is emphasized in these new structures. (No refs.) - *M.G. Conant.*

645 KINOSHITA, S., & KAN, O. Architectural planning in mental retardation in Japan: Summary of a report. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 581-582.

There are a variety of factors which must be considered in the construction of facilities for the MR. Considering the facility as a home, one must take into account the number of people in a room and a unit, storage space, and escape in case of fire. School facilities (class and classroom size and placement of occupational and training facilities) and hospital facilities (type of rooms needed and location of special treatment facilities) must also be considered. The administration and management of the residential community should also be well planned in advance, and the degree of centralization, educational department, and size and placement of buildings should be taken into account. (No refs.) - *M. G. Conant.*

646 GRUNEWALD, K. Architectural planning in mental retardation (day facilities). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 701-702.

One facility for terminal placement for MR adults is the sheltered workshop,, which generally employs 30-40 people and is located in an industrial area. The aim is production on a contract basis, and the employees live in private homes, hostels, or residential facilities. Activity centers, which are the long-term placement for those MR adults unable to work in the sheltered workshop, try to develop personal and social adequacy and to provide recreational facilities. The young MR are trained in general work skills in a vocational training center, from which they may go to regular employment or a sheltered workshop. (No refs.) - *M.G. Conant.*

647 VISLIE, H. Research for architecture. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 784-786.

The aim in research for architecture is to create an environment that will stimulate development. There are 2 types of ward units: those with maximum visibility at all times and those which provide a sense of enclosure and security and have clearly defined rooms. These different types of units should be tried with groups of: hyperactive, destructive, and aggressive children; withdrawn children with anxiety symptoms; and children with limited mobility. Research should center on what happens in a therapeutic community rather than on the isolation of variables, which is extremely difficult with retarded children and staff personnel. (No refs.) - *M.G. Conant.*

648 GANGNES, A.G. Architecture for research. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 787-791.

The Federal government established University Affiliated Facilities for the Mentally Retarded, a program under which funds are provided to help colleges and universities build training facilities for personnel specializing in MR. Trained personnel are required to supply services to the MR and, optionally, to engage in research. The multidisciplinary facilities at the Universities of Miami, Tennessee, Colorado, Oregon, and Washington are described briefly. The new approaches to treatments for the retarded provided by this program are innovative and creative. (No refs.) - *M.G. Conant.*

649 DE WIT-SAUTER, A.M. Some specific aspects of living accommodation for the severely mentally handicapped. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 496-497.

The actual design of a living community for the MR should not be directed solely toward their protection, but should provide dynamic tension by which life in this community could offer opportunities for development. The influence of spatial qualities on the mentally deficient is hard to investigate because there are large individual differences between mentally handicapped Ss, MRs have limited ability in expressing their experiences, and the MRs' experiences in a facility is dependent upon how the use of the facility was originally demonstrated to them. These problems can be solved by a multidisciplinary exchange of views in terms of a common language. (1 ref.) - *M.G. Conant.*

650 NATIONAL FOUNDATION-MARCH OF DIMES. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, 124 p. $10.00.

The emphases of these papers, which were presented at the Human Genetics Institute, Sacramento, California, December 13-15, 1967, are on basic genetics, recent advances in genetics, and those aspects of genetics presently applicable to patient care. Genetic concepts under current investigation include gene action in protein synthesis, Mendelian laws, the location of genes on chromosomes, specific trait inheritance, patterns of inheritance, the biochemical bases of inheritance, and the etiology of chromosomal aberrations. Recent advances in genetic experiments have resulted in new

discoveries in human cytogenetics and biochemical genetics, the knowledge that in several species maternal genes in a developing embryo function before the embryonic genes are activated, the combination of cytogenetic and hematologic techniques to produce a map of human autosomal chromosomes, and the development of new techniques which allow for the identification of the asymptomatic carriers of 67 of the 99 presently known inborn errors of metabolism. In patient care, genetics can be applied to screening tests, laboratory diagnostic methods, and genetic counseling. Public health agencies are beginning to use biochemical, cytogenetic, and epidemiological methods to detect inherited disorders. This book should be of interest to biochemists, geneticists, physicians, pediatricians, and public health personnel. (549 refs.) - *J.K. Wyatt.*

CONTENTS: Principles of Human Inheritance (Cann); Biochemical Aspects of Human Inheritance and Hereditary Disease (Epstein); Advances in Human Cytogenetics—I. Basic Considerations (Passarge); Advances in Human Cytogenetics—II. Clinical Aspects (Passarge); Maternal Influence upon Genetic Activity of Early Embryos (Ohno); Blood Groups as Gene Markers in Human Genetics (Diamond, Gerald, & Bloom); Recent Advances in Human Biochemical Genetics (Fudenberg); Recent Advances in the Detection of Heterozygous Carriers (Hsia); A Pediatrician's View of Genetics (Eisner); Screening for "Inborn Errors of Metabolism" in the Newborn Infant—A Multiple Test Program (Guthrie); Public Health Aspects of Genetics Screening (Honeyman & Gabrielson); Human Factors in Genetic Counseling (Reed); Genetic Counseling in a Team Setting (Tips & Lynch).

651 SARASON, SEYMOUR B., & DORIS, JOHN. *Psychological Problems of Mental Deficiency.* Fourth edition, New York, New York, Harper & Row, 1969, 483 p. $9.95.

Historical perspective on the problems of MR is provided by dealing with those generalizations which provide a sense of continuity with the past, illustrate a need for tentativeness in regard to present developments, and provide outlines of changes which are already in process. Discussions of issues and problems include: recent marked changes in the field of MR; styles of thinking about the behavior of MRs; criteria, grouping, and diagnosis; cultural deprivation; methods of educational and institutional intervention and their consequences; and theory application. Preliminary research findings on the climates of institutions for MRs and on the effects of an MR child on family organization and normal sibling provide new information and demonstrate a need for more research in these areas. Historical data on the heredity-environment question, eugenics, intelligence testing, and the social indictment of MRs provide continuity between the present and the past, allow for distinctions between opinions and facts, and illustrate that the theories and practices employed at any point in time reflect the nature of society. Chapters on chromosomal abnormalities, PKU, brain damage, and autism demonstrate the inextricable relationship that exists between social, biological, and psychological factors. This book should be of interest to psychologists, educators, biologists, sociologists, anthropologists, and social historians. (416 refs.) - *J.K. Wyatt.*

CONTENTS: Goals and Organization of the Book; Mental Deficiency and the Larger Society; The Use and Misuse of Labels; The Problem of Criteria; Cultural Deprivation; Educational Intervention; The Effects of Institutionalization; The Climate of Institutions and the Problem of Change; The Retarded and Institutions for the Retarded—A Preliminary Research Report (Klaber); Siblings of the Retarded (Kaplan); Biological Science and Social Attitudes: The Nineteenth-Century View of Mental Subnormality; The Origin and Early Development of Eugenics; The Use and Misuse of Mendelism in Eugenics; Sociopolitical Factors in Science; Intelligence Tests and the Social Indictment of the Retarded; Intelligence Testing, Eugenics, and Racism; The Decline of the Social Indictment of the Feebleminded; Phenylketonuria (PKU): Biological, Psychological, and Social Aspects; Mongolism and Other Chromosomal Anomalies; Brain Damage; Infantile Autism: The Continuing Controversy.

652 TRUEX, RAYMOND C., & CARPENTER, MALCOLM B. *Human Neuroanatomy.* Sixth edition. Baltimore, Maryland, Williams & Wilkins, 1969, 673 p. (Price unknown).

This standard textbook of neuroanatomy is written for the medical student and covers the gross anatomy, histology, and function of the central and peripheral nervous systems in detail. There are profuse illustrations and many charts. This book would be useful in introductory and advanced courses in neuroanatomy and as a reference for practicing physicians seeking specific information in this area. (1,495 refs.) - *E.L. Rowan.*

CONTENTS: Origin and Composition of the Nervous System; Meninges and Cerebrospinal Fluid; Gross Consideration of the Central Nervous System; Blood Supply of the Central Nervous System; Development and Histogenesis of the Nervous System; The Neuron; Neuroglia, Ependyma, and Choroid Plexus; Peripheral Nerves and Their Ganglia; Peripheral Terminations of Afferent and Efferent Nerve Fibers; Segmental and Peripheral Innervation; Autonomic Nervous System; Internal Structure of Spinal Cord; Fiber Tracts of the Spinal Cord; The Medulla; The Pons; The Mesencephalon; The Cerebellum; Topography of the Diencephalon and Basal Ganglia; The Diencephalon; The Basal Ganglia; Rhinencephalon, Olfactory Pathways, and Limbic System; The Cerebral Cortex.

653 SPASTICS INTERNATIONAL MEDICAL PUBLICATION. *Bibliography of Developmental Medicine and Child Neurology: Books and Articles Received in 1968.* Supplement Number 17, *Developmental Medicine and Child Neurology.* London, England, William Heinemann Medical Books, 1969, 110 p. $2.00.

The sixth issue of the annual bibliography lists 1,276 journal articles and 190 books which were received in 1968 by the Spastics Society. The articles are arranged under specific headings including Down's syndrome, cerebral palsy, neurological disorders, metabolic disorders, and mental handicap. Author and subject indices are included. (1,466 refs.) - *A. Huffer.*

654 DROSSMAN, L. MARLYN. Dental care for the mentally retarded. An annotated bibliography. *Mental Retardation Abstracts*, 6(4):561-577, 1969.

An annotated bibliography on dental care for the MR is presented. Articles are included from the years 1959 to the present and are grouped into areas of interest in dentistry: general, training and institutional services, methods, and devices. (152-item bibliog.) - *L. Bayliss.*

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MEDICAL ASPECTS—DIAGNOSIS (GENERAL)

655 POSER, CHARLES M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, 271 p. $9.50.

Recent advances in the various specialities concerned with MR have added new dimensions to the diagnosis and treatment of the MR and have forced a re-examination of many concepts. Since MR has many diverse aspects, 18 writers from various disciplines attempt to bridge the communication gap which exists between the disciplines by presenting from their viewpoint the problems of true and pseudoretardation. It is the multidisciplinary approach that provides the basis for a sound evaluation and the construction of a practical therapeutic and educational regimen. Although the book is addressed primarily to the physician, it should be of interest to the other fields concerned with MR. (182 refs.) - *K. Lee.*

CONTENT: General Principles of Diagnosis and Management of Mental Retardation (Poser); Neurologic Evaluation of the Infant and Child (Poser & Huntley); Psychologic Evaluation (Ford); Education Information (Teague); Treatment of Non-Neurologic Causes of Pseudoretardation (Huntley); Treatment of Communicative Disorders (Graham, Hartman, Faires, & Wurth); Treatment of Metabolic and Endocrine Causes (French, Graziani, & Scheinberg); Surgical Treatment of Mental Retardation (Shulman); Treatment of Pseudoretardation Associated with Epilepsy (Blaw & Torres); Psychiatric Management of the Mentally Retarded Child (Hart); Genetic Investigations and Genetic Counseling (Francisco); Degenerative Diseases Causing Mental Retardation (Poser); General Principles of Training Programs (Collins); and The Mentally Retarded in the Institution (Francisco).

656 POSER, CHARLES M. General principles of diagnosis and management of mental retardation. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 1, p. 1-13.

The most accurate definition of MR stresses that the individual is functioning below the level of his peers. Developmental landmarks are useful in evaluating an individual in relation to his peers. Retardation can be grouped into 4 basic types: pseudoretardation, remediable retardation, psychological retardation, and organic retardation. Each of these conditions responds to treatment, and it is important to provide careful attention to diagnosis and planning for all retarded individuals. (15 refs.) - *J.M. Gardner.*

657 POSER, CHARLES M., & HUNTLEY, CAROLYN J. Neurologic evaluation of the infant and child. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 2, p. 14-38.

A comprehensive neurological evaluation of infants and children requires a neurological history, medical information, and careful observation sometimes extended over several examinations. The neurological examination is always given concomitantly with a complete physical checkup. Factors to consider are appearance, head size, muscle tone and motor function, cranial nerves cerebellar function, speech, and reflexes. The laboratory examination should include urinary screening, skull and other X-rays, EEG, and examination of the cerebrospinal fluid. The general approach to the individual should be flexible. (No refs.) - *J.M. Gardner.*

658 HUNTLEY, CAROLYN J. Treatment of pseudoretardation from non-neurologic causes. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 5, p. 78-91.

An incorrect diagnosis of MR can be made for a variety of reasons which include errors in medical history, poor timing of the physical examination, errors in interpreting physical features, or errors in testing. Apart from examiner error, conditions which may lead to the appearance of MR include malnutrition, prolonged illness or hospitalization, prematurity, and cultural deprivation. Because an erroneous diagnosis can lead to irreparable harm, the physician must take all factors into consideration. (15 refs.) - *J.M. Gardner.*

659 CONE, THOMAS E., JR. Diagnosis and treatment: Some diseases, syndromes, and conditions associated with an unusual odor. *Pediatrics*, 41(5):993-995, 1968.

The pediatrician's sense of smell can be an important diagnostic tool, and he should be aware of the disorders of amino acid and fatty acid metabolism which have characteristic odors. In phenylketonuria, the phenylacetic acid in sweat and urine produces a "musty" odor while branched-chain amino acids in sweat and urine produce the characteristic smell of maple syrup urine disease. The odor of dried malt or hops in the oast-house syndrome and the "fruity" or "fishy" smell in hypermethioninemia are part of the clinical picture, as is the "cheesy" or "sweaty feet" odor in isovaleric acidemia. An hereditary defect of short-chain fatty acid metabolism is responsible for the "odor of sweaty feet" syndrome. An early diagnosis of an inborn error of metabolism can be possible if the doctor pays more attention to the odor of the infants he examines. (13 refs.) - *E. L. Rowan.*

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660 PAINE, RICHMOND S. Special features of neurological diseases in children. *Clinical Proceedings of Children's Hospital of the District of Columbia*, 24(9):307-321, 1968.

Neurological principles common to adult life cannot be generalized to children. Sharply localized vascular lesions are rare, certain neurological diseases are peculiar to childhood, and a static lesion or degenerative disease may present a confusing and changing picture as the normal sequence of growth and development is distorted. Examination is also different and more difficult in infants. Observation of posturing and spontaneous movement is perhaps the most important aspect of the examination of the infant. Limited cooperation requires that questionable functions be examined first. The examiner should not follow a rote sequence. It is essential that a knowledge of the changing standards for normal for each age with regard to motor function, reflexes, automatisms, and sensory responses be known. Prolonged observation may be necessary to differentiate general retardation from that which is specifically mental or physical. Proper examination is essential to the formulation of a proper differential diagnosis, the gathering of appropriate laboratory data, and the institution of treatment. (No refs.) - *E. L. Rowan.*

Children's Hospital of the
District of Columbia
Washington, D.C.

661 EGAN, D.F., ILLINGWORTH, R.S., & MAC KEITH, R.C. *Developmental Screening 0-5 Years.* London, England, Spastics International Medical Publications, 1969, 65 p. $4.00.

Developmental screening techniques provide the essential basis for early assessment, diagnosis, and treatment and should be carried out at 6 weeks, 6 months, 10 months, 18 months, 2 years, 3 years, and 4 1/2 years of age. Physicians are responsible for helping a child develop his full potential; therefore, periodic developmental screening should be given, especially if there is any suspicious delay in development. A routine medical examination should consist of a general physical examination and a developmental screening examination which should provide for the assessment of gross motor function, fine manipulation, vision, hearing and language, everyday skills, and social reactions. Children suspected of abnormality at a developmental screening examination may be referred to a pediatric clinic for confirmation, comprehensive assessment, or an expert check on the possible etiology of the disorder. In interpreting the findings of a developmental assessment, physicians should remember: there are tremendous individual differences in development; an MR child is backward in all fields of development, except occasionally in sitting, walking, and sphincter control; an accurate forecasting of intelligence is not possible before age 5; and abnormal signs may completely disappear in time. Physicians should be open and admit their doubts to mothers, but should be extremely cautious about labeling a child spastic or backward. This guide to rapid successive screening developmental examinations should be of interest to physicians and pediatric specialists. (8 refs.; 8-item bibliog.) - *J. K. Wyatt.*

CONTENTS: Aim; General Physical Examination; Inherent Primitive and Seondary Responses in the First Year; The Developmental Screening Examination; The Six-week-old Baby; The Six-month-old Baby; The Ten-month-old Baby; The Eighteen-month-old Child; The Two-year-old Child; The Three-year-old Child; The Four-and-a-half-year-old Child; and Interpretation.

662 BLOM, SIGFRID, & FINNSTROM, ORVAR. Motor conduction velocities in newborn infants of various gestational ages. *Acta Paediatrica Scandinavica*, 57(5):377-384, 1968.

Ulnar and peroneal nerve conduction velocities were measured in 26 full-term (gestational age over 266 days) and 12 premature infants (less than 266 days gestation) between the first and ninth day following birth. The conduction velocities were significantly lower in the pre-term babies, and for both groups, the conduction velocity of the peroneal nerve was slightly lower than that of the ulnar nerve. In the 3 cases where motor conduction velocities of pre-term infants were measured twice, the results of the second examination fell within the predicted level for the actual age. The variation in motor conduction velocity among full-term infants is probably due to different gestational ages and variations in maturity. This measurement seems to be an additional method of assessing the degree of maturity at birth and of determining gestational age. (30 refs.) - *M.G. Conant.*

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663 PENROSE, L.S. Medical significance of finger-prints and related phenomena. *British Medical Journal*, 2(5601):321-325, 1968.

Fingerprint pattern distortions are found in malformation syndromes; however, chromosomal aberrations cannot be diagnosed on fingerprints alone because of the enormous variation in normal individuals. Distinctive information is gained from 3 separate fields of fingerprint study including: the fine details of ridge formation known as minutiae, significant in identification; the arrangement of flexion creases which has some value in diagnosis of malformation syndromes; and the topography of the systems of the parallel ridges at the macroscopic level. Patterns are made by the discontinuity of the parallel lines; the most common to all systems are loops (which occur when the ridges turn through an angle of 180°) and triradii (the triangular point at the base of the fingerprint pattern). Ridges radiating from a triradius to the loop core are counted during clinical investigation. A possible cause of the various patterns is embryonic edema through the tenth week which causes wrinkling due to compression. Pattern distortions also occur simultaneously with limb deformities. More interest in this obscure branch of pathology is needed. (16 refs.) - *L. Bayliss.*

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St. Albans, Hertfordshire, England

664 DUBOWITZ, VICTOR. The floppy infant—A practical approach to classification. *Developmental Medicine and Child Neurology*, 10(6): 706-710, 1968.

Classifications of the floppy or hypotonic infant are a confusing mass of anatomical and pathological terminology and require exhaustive diagnostic procedures for differentiation; therefore, the only practical approach to a differential diagnosis is on a clinical basis. The main categories of floppy infants are paralyzed children with incidental hypotonia and hypotonic children without significant weakness. Of the paralytic group, the most common condition is infantile spinal muscular atrophy or Werdnig-Hoffman's disease (degeneration of the anterior horn cells) and its more benign variants. This group also includes nonprogressive congenital myopathies and other neuromuscular disorders. Of the non-paralytic group, hypotonia in association with MR makes up the largest part. Other causes include the hypotonia-obesity syndrome of Prader-Willi, connective tissue disorders, acute illness, and metabolic, nutritional, and endocrine defects. The term "essential hypotonia" denotes hypotonia without weakness when there is no apparent underlying disorder. As the underlying disorders are recognized, this category should disappear. (23 refs.) - *E.L. Rowan.*

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665 ILLINGWORTH, R.S. The clumsy child. *Clinical Pediatrics*, 7(9):539-543, 1968.

"Clumsiness" is not a diagnostic category but rather a symptom with a wide variety of causes including normal variations, delayed maturation, familial traits, emotional difficulties, minimal cerebral dysfunction, minimal cerebral palsy, congenital myopathy, mirror movements, drug toxicity, apraxia and agnosia, MR, and any number of CNS disorders. Neurological examination and psychological testing are essential in evaluation. The optimal treatment approach is directed toward family and teachers who must be made to realize that the child cannot control his awkwardness. Encouragement rather than ridicule will enable the child to work with his deficit and not add discouragement to his neurological burden. (20 refs.) - *E.L. Rowan.*

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666 DENHOFF, ERIC. Detecting potential learning problems at preschool medical examinations. *Texas Medicine*, 65(3):56-59, 1969.

Along with the psychologist and teacher, the physician has a significant role to play in evaluating the child with difficulty in school since neurological inefficiency and maturational delay are as important as intelligence and social-environmental stresses in school performance. A group screening technique based on significant items from the Meeting Street School Screening Test for Learning Disorder will point up the need for further individual evaluation. If failure in tests of balance, gross motor synchronization, fine motor coordination, motor speech, extra-ocular motility, and stereognosis is significant, then individual evaluation of gross motor function, fine pattern movements, perceptual motor skills, sensory integration, language skills, and complex integration skills is in order. If these screening items were included in every physician's routine preschool examinations, then children with potential difficulty would be identified earlier and special evaluation or training undertaken. (2 refs.) - *E.L. Rowan.*

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667 NADLER, HENRY L. Prenatal detection of genetic defects. *Journal of Pediatrics*, 74(1):132-143, 1969.

The prenatal detection of genetic defects, such as chromosomal abnormalities and inborn errors of metabolism, may be accomplished by examining the amniotic fluid. Transabdominal amniocentesis can be done with reasonable safety after the sixteenth week of gestation. The supernatant fluid may be subjected to viral and biochemical studies. Desquamated amniotic fluid cells may be examined cytologically for a sex chromatin mass or metachromatic granules. Cultured cell lines provide satisfactory karyotypes for chromosomal analysis and sufficient material for enzyme studies. The detection of an abnormality may provide a specific risk (100% or 0%) for counseling the termination of pregnancy or may suggest specific management as in Rh isoimmunization. Until more centers become skilled in the technique and the normal parameters of amniotic fluid and cells are defined, the procedure can only be considered as experimental in nature. (96 refs.) - *E.L. Rowan.*

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668 MORTON, KATHLEEN. Importance of prenatal pediatrics. *Clinical Pediatrics*, 7(9):22A, 1968. (Letter)

The need for prenatal pediatric consultation is illustrated by 2 cases. One male infant (CA 24 hrs) was diagnosed as having cerebral edema which the pediatrician, after consultation with the mother, attributed to large doses of sedatives and tranquilizers taken during pregnancy. Drug withdrawal symptoms consequently occurred in the neonate. A second male infant failed to breathe spontaneously after delivery. Vigorous resuscitation procedures were administered by the delivering physician; however, respiratory difficulty remained for 18 hours. The infant then was seen by a pediatrician who determined that failure to breathe was caused by a right pneumothorax. Corrective measures were instigated and the infant eventually recovered. Pediatric consultation should be utilized in cases of previous difficult delivery and unanticipated difficulties in newborns. Pediatricians should consult thoroughly with mother and physician, and attending physicians should become aware of possible legal vulnerability. (No refs.) - *V.R. Shaffer.*

No address

669 HONEYMAN, MERTON S., & GABRIELSON, IRA W. Public health aspects of genetic screening. In: National Foundation-March of Dimes. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, p. 99-104.

Public health programs should include screening for congenital and inherited disorders. The control of infectious disease has increased the relative importance of the identification of the genetic factors which make individuals or populations susceptible to disease. Public health programs are presently moving away from the conquest of acute infectious diseases and toward a greater preoccupation with chronic diseases. Public health agencies are beginning to use genetic screening methods which include biochemical, cytogenic, and record analyses. (12 refs.) - *J.K. Wyatt.*

670 HSIA, DAVID YI-YUNG. Recent advances in the detection of heterozygous carriers. In: National Foundation-March of Dimes. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, p. 75-87.

The present status of the biochemical identification of the heterozygous carriers of 125 known inborn errors of metabolism indicates that there is clear evidence for the identification of heterozygotes in 55 conditions. In addition, there is suggestive evidence for the identification of heterozygotes in 12 conditions; it is not possible to identify the heterozygotes in 12 conditions; there is no useful information on the heterozygotes in 15 conditions; the disease is transmitted as an incompletely dominant trait in 12 conditions. New biochemical techniques which make possible the detection of heterozygotes in metabolic diseases include the direct measurement of enzyme levels in the parents and siblings of affected individuals, the use of loading tests on the parents of affected individuals to separate heterozygotes and normals, and the examination of leukocytes and fibroblasts derived from heterozygotes. Careful measurement of the enzyme levels of the relatives of an affected individual frequently provides useful and sometimes unexpected data on a specific genetic trait. The detection of heterozygous carriers is of immense value in the estimation of gene frequency in different populations and in the provision of genetic counseling for high risk families. (139 refs.) - *J.K. Wyatt.*

671 BRADFORD, WILLIAM D. The case for careful examination of the placenta: Helpful information from the delivery room. *Clinical Pediatrics*, 7(12):716-719, 1968.

Examination of the placenta in the delivery room may yield information about infection, fetal distress, congenital malformations, zygosity (twins), or transfusion syndrome in the infant. A single umbilical artery (normally 2 arteries and 1 vein) is associated with an increased incidence of congenital malformations as is amnion nodosum and oligohydramnios. Pus on the placenta is a certain sign of intrauterine infection. Twin placentas with a single chorionic membrane are invaribly monozygotic; whereas, 2 separate chorions may be either monozygotic or dizygotic. In the transfusion syndrome, the placenta of monochorionic twins contains vascular anastamoses and cross-circulation which may make one twin hypovolemic; dehydrated, and malnourished and the other hypervolemic and edematous. Examination is, therefore, mandatory in all cases of perinatal death, multiple birth, and complicated delivery but ideally should be done at every delivery whether normal or with complications. (10 refs.) - *E.L. Rowan.*

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672 MAGENDANTZ, HENRY G., KLAUSNER, DAVID, RYAN, KENNETH J., & YEN, S.S.C. Estriol determination in the management of high-risk pregnancies. *Obstetrics and Gynecology*, 32(5):610-619, 1968.

Estriol determinations were made in high-risk pregnancies in 135 patients, including 32 diabetics. The Ittrich test procedure was used, and for samples containing glucose, the Cohen addition to the Ittrich method was used. Daily estriol determinations may be required beginning at 34 weeks. Estriol levels which drop to 4± 1 mg during the last 6 weeks indicate fetal stress, and survival requires immediate delivery. These principles served in the clinical management of complicated pregnancies. With 10 normal patients, all infants survived, with 43 toxemic Ss, 5 infants died; with 32 diabetics, 5 infants died; with 20 chronic hypertensives, 1 infant died; with 18 fundal lag Ss, 1 infant died; with 15 prolonged pregnancy Ss, 1 infant died, and with 7 chronic renal disease Ss, 1 infant died. The origin of urinary estriol and the effect of medications on estriol determinations were discussed. (32 refs.) - *F.J. McNulty.*

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673 ERBA, GIUSEPPE, & LOMBROSO, CESARE T. Detection of ventricular landmarks by two dimensional ultrasonography. *Journal of Neurology, Neurosurgery and Psychiatry*, 31(3):232-244, 1968.

An ultrasonic method for determining ventricular landmarks without extensive searching uses multi-level, 2-dimensional intensity modulated contact scanning in which pulse damping, peak clipping, beam power, gain, range, and other factors are independently controlled. Ultrasonagraphs from 80 Ss correlated 0.97 with their pneumoencephalographs. In tests with 750 patients with various neurological disorders, 282 had abnormal sonograms. Two-dimensional ultrasonography is particularly promising in the early detection of hydrocephalus because the earliest indication of incipient hydrocephalus appears to be a vertical stretching of the ventricular walls. The use of ultrasonography has the advantage of innumerable examinations with the least amount of danger to the patient. (22 refs.) - *K. Drossman.*

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674 KELLAWAY, PETER, & PETERSEN, INGEMAR, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, 332 p. $16.75.

Clinical pediatric electroencephalography (EEG) including normal variations of EEG with age, sex, and wakefulness, is discussed in terms of the diagnostic and prognostic applications of EEG studies to infants and children, especially newborns. Paroxysmal activity in normal and epileptic children and the use of computers in EEG analysis are also considered. Research reveals that the correlations between α-frequency and age are similar for children and and monkeys and that there is a species difference in speed of development of different nervous functions. Studies also show that there is a difference between "small for dates" newborns and true prematures and that they can be differentiated in 90% of the cases. The prognostic value of the neonate EEG is significant in that an abnormal EEG is related 93% of the time to an unfavorable clinical course. Paroxysmal abnormalities during the first 2 years and absence of maturation are highly correlated with abnormal EEG in the neonatal period. Since the site of brain lesion can be determined by EEG study in 90% of patients. EEGs can be useful in the investigation of anoxic cerebral seizures, subacute sclerosing leukoencephalitis, and other neurological disorders. This book should be of interest to neurologists, pediatricians, and other investigators with some knowledge of EEG. (555 refs.) - *K. Drossman.*

CONTENTS: Early Ontogenesis of Electrocortical Activity—With Special Reference to Experimental Studies on the Fetal Sheep (Bernhard & Meyerson); Physiological Mechanisms of the Alpha Waves (Andersen & Andersson); Electroencephalographic Maturation and Low Birth Weight (Dreyfus-Brisac & Minkowski); The Prognostic Value of the Electroencephalogram in the First Two Years of Life (Monod & Ducas); The Electroencephalogram in Active and Quiet Sleep in Infants (Parmelee, Jr., Akiyama, Schultz, Wenner, Schulte, & Stern); Power Spectral Analysis of the Electroencephalogram of Newborn Twins in Active and Quiet Sleep (Nolte, Schulte, Michaelis, & Juergens); Development of the Waking EEG in Normal Infants During the First Year of Life—A Longitudinal Study Including Automatic Frequency Analysis (Hagne); Variance Spectra of Electroencephalograms in Twins—A Contribution to the Problem of Quantification of EEG Background Activity in Childhood (Dumermuth); Reverse Correlation of 14 and 6 per Second Positive Spikes (Kaiser & Petersen); Paroxysmal Activity in EEG of Normal Children (Petersen, Eeg-Olofsson, & Sellden); Paroxysmal and Background Activities in Long-Term Studies—Their Prognostic Value (Kugler); Functional Aspects of EEG Foci in Children— Clinical Data and Longitudinal Studies (Lairy & Harrison); Changes of Spike Foci in Children (Trojaborg); Methods for Optimum EEG Detection and Localization of Focal Lesions in Children (Bechtereva & Vvedenskaya); EEG and Surgical Treatment of Focal Epilepsy in Children (Zemskaya); The Prognostic Value of EEG in Children with Epilepsy (Lundervold); A Physiopathogenic Study of Reflex Anoxic Cerebral Seizures in Children (Syncopes, Sobbing Spasms and Breath-Holding Spells) (Gastaut); Depth Recording in Subacute Sclerosing Leukoencephalitis (Cobb); The Evolution of EEG Features in Tay-Sachs' Disease and Amaurotic Family Idiocy in 24 Children (Pampiglione & Lehovsky); The EEG in Dyslexia (Hughes & Park).

675 DREYFUS-BRISAC, C., & MINKOWSKI, A. Electroencephalographic maturation and low birth weight. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, p. 49-60.

Electroencephalographic evaluations were done on 96 (44 males; 52 females) neonates whose weights were below the tenth percentile in order to develop EEG determinants for true gestational age; in 90% of the cases, "small-for-dates" newborns could be distinguished from true prematures. The gestational age at birth was actually known and the clinical history obtained in 88 cases. The neurological state was often very poor during the neonatal period; only 11 infants were considered to have a normal clinical course. The EEGs of experimental infants were compared to criteria already known for wakeful and sleep states of full-term and true premature infants. Characteristics analyzed included: voltage, frequency and rhythm, topography, continuity, synergy and symmetry between the 2 hemispheres, presence of unusual waves, and modifications occurring in light and deep sleep. The EEG records were later reviewed by experts, without knowledge of the actual gestational age, and errors recorded in classification were usually due to pathology of the newborn. (51 refs.) - *K. Drossman.*

676 MONOD, N., & DUCAS, P. The prognostic value of the electroencephalogram in the first two years of life. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, p. 61-76.

In follow-up studies on 161 children given electroencephalograms (EEG) as newborns (120 with normal EEGs; 106 with very abnormal EEGs; and 87 with moderately abnormal tracings), it was found that a severely abnormal EEG had an unfavorable prognostic

value 93% of the time and that such infants usually developed severe neurological defects. A moderately abnormal EEG does not appear to have the same value in prognosis; 60% of these children became normal or had minor disorders. EEGs for use as prognostic tools should be taken within 5 days after birth. (41 refs.) - *K. Drossman.*

677 PARMELEE, ARTHUR H., JR., AKIYAMA, YOSHIO, SCHULTZ, MARVIN A., WENNER, WALDEMAR H., SCHULTE, F.J., & STERN, EVELYN. The electroencephalogram in active and quiet sleep in infants. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, p. 77-88.

Twelve normal full-term and 14 normal premature infants were recorded electroencephalographically (EEG) within 4 days of birth for the full-term, and at the expected date of delivery for the premature infants in order to ascertain the normal distribution of specific EEG patterns in both quiet and active stages of sleep. In addition, 1 hydrocephalic, 2 mongoloid, 2 anoxic, and 4 hypothyroid infants were recorded and EEG deviations from the normal patterns were noted. Recordings were made in a sound attenuated room between 8 PM and midnight and were taken over a 2 1/2 hour period in order to record at least 2 complete sleep cycles. As a normal infant matures, the 2 pattern distributions for each stage of sleep become more and more separated and distinct from each other. By 8 months of age, there is a nearly complete separation of EEG patterns, as occurs in adults. Deviations found in abnormal infants include: absence of sleep spindles in the 4 hypothyroid infants; no sleep spindles in the 2 anoxic infants who were later found to be MR; and a pattern shift in the hydrocephalic infant with a slowing of the EEG. The 2 mongoloid infants had essentially normal EEGs. Quantification of EEG patterns in normal infants during specific sleep stages should aid in determining abnormal brain maturation. (21 refs.) - *K. Drossman.*

678 LAIRY, G. C., & HARRISON, A. Functional aspects of EEG foci in children: Clinical data and longitudinal studies. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, p. 197-212.

One hundred and two children (CA 6 to 14 yrs) with normal IQ levels and no history of epilepsy or encephalopathy were shown to have a focus of spikes or sharp waves after EEG studies. Follow-up studies for 1 to several years were done on 56 of the children in a clinic which specialized in psychomotor and language disorders. The location of the spike or sharp wave foci was related to the age and IQ of the S and to background activity and clinical symptoms (school problems, clumsiness, behavior problems). In comparison with normal children (without EEG foci), these Ss were significantly inferior in motor quotient, spatial organization, and motor control; however, none of these children developed clinical epilepsy or had to be treated with anticonvulsants. The disappearance of the focus with age or training was usually accompanied by clinical improvement, especially in the area of motor control. It is suggested that such children be considered apart from epileptic patients and that therapy should be instituted to correct motor problems. Medication may not be needed for the treatment of these children except to promote better cooperation between the child and the therapist. (16 refs.) - *K. Drossman.*

679 TROJABORG, W. Changes of spike foci in children. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children,* New York, New York, Grune & Stratton, 1968, p. 213-225.

Long term studies (3 to 15 yrs) on 242 children with spike foci in EEG recordings demonstrated a change in the localization site of the primary focus in 70% of the cases. The focus persisted in the same region in only 10% of the children and in only 20% did it recur at the original site after having moved. In 1/3 of the children, the spike foci disappeared entirely. The number of brain regions involved in the discharges was also subject to considerable variation. Many of the loci shifts occurred within days or weeks; therefore, spike discharges are not valuable as indicators of cortical damage in children, nor are electroclinical correlations reliable, unless the EEGs are done serially over many years. (16 refs.) - *K. Drossman.*

680 BECHTEREVA, N.P., & VVEDENSKAYA, I.V. Methods for optimum EEG detection and localization of focal lesions in children. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, p. 227-238.

The localization of brain lesions by EEG was demonstrated on several hundred children (CA less than 16 yrs) with brain tumors or epilepsy. EEG examinations with restricted external stimuli and using rhythmic photic stimulation, trigger photostimulation, falling asleep during habituation to dark, and/or hyperventilation may induce localized changes correlated with the lesion or more generalized EEG changes. The use of slow waves in locating the pathological focus in children is apparently much less reliable than in adults, as EEGs of children usually have many slow components. The most useful functional test for locating epileptogenic loci in children is the trigger photostimulation test which can be used in place of the Metrazol test. (17 refs.) - *K. Drossman.*

681 CARTER, C.O. Genetics in the aetiology of diseases. *Lancet,* 1(7603):1014-1016, 1969.

As public health measures have reduced the incidence of infectious and environmentally determined diseases, genetic factors in the etiology of disease have become increasingly more important. Whereas chromosomal abnormalities and mutant genes cause phenotypes which are relatively easy to recognize, it is difficult to distinguish between deviations based on accumulated small gene effects and those based on environmental factors. Genetic predisposition can best be ascertained by twin and family studies which give clues to the strength of factors but not to the nature of the disease

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process. Twin studies must include an unbiased diagnosis of the disease, accurate evaluation of dizygosity or monozygosity, and information about specific ante- and postnatal differences. Family studies of siblings and first cousins of index cases can provide the same information. Studies of twins or family members raised apart are especially useful in differentiating genetic from environmental factors. (12 refs.) - *E.L. Rowan.*

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MEDICAL ASPECTS—PREVENTION AND ETIOLOGY (GENERAL)

682 POSER, CHARLES M. Degenerative diseases causing mental deterioration. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 12, 232-240.

Degenerative disease may be defined as the loss of previously existing mental or neurological functioning, or as the failure to continue showing the normal progression of mental development. These diseases occur at various times throughout the developmental period. Degenerative diseases present at birth include galactosemia, kernicterus, congenital toxoplasmosis, and cytomegalic inclusion body disease. Conditions occurring during the first year of life include diseases of storage functioning or lipidoses, such as Tay-Sachs disease and Niemann-Pick disease. Basic disease groups which occur during childhood are myelinoclastic diffuse sclerosis, the dysmyelinating leukodystrophies, and the subacute leukoencephalitides. Other diseases of childhood include tuberous sclerosis, Wilson's disease, myoclonus epilepsy, and the Laurence-Moon-Biedl syndrome. Chronic meningitis, chronic metal intoxications, chronic drug intoxications, trauma, and primary brain tumors are among the secondary degenerative diseases which may affect the CNS. (No refs.) - *J.M. Gardner.*

683 EASTHAM, R.D., & JANCAR, J. *Clinical Pathology in Mental Retardation.* Baltimore, Maryland, Williams & Wilkins, 1968, 356 p. $13.25.

Causal factors have been demonstrated in only 35% of patients with MR, while the other 65% bear the diagnosis "MR of unknown etiology". By use of a multidisciplinary approach, the authors, a psychiatrist and a clinical pathologist, have documented known biochemical, endocrine, and metabolic disorders; chromosomal abnormalities; and other demonstrable causes of MR such as trauma, infection, and toxicity which affect the rapidly developing CNS *in utero* and during the first 2 years of life. Clinical findings, mental state, clinical laboratory findings, mode of inheritance, heterozygotes, nature of lesion(s), and treatment data are included where applicable and/or known. This text includes the salient features of each known cause of MR (without illustrations) while referring to the literature for elaboration. This book should be of interest to physicians and all persons interested in MR. (1,465 refs.) - *E.L. Rowan.*

CONTENTS: Non-specific Laboratory Findings in Mentally Retarded Patients; Disorders of Amino-acids and Related Substances; Disorders of Lipid Metabolism; Disorders of Carbohydrate Metabolism; Disorders of Endocrine Metabolism; Disorders of Metabolism of Connective Tissue and Related Substances; Chromosomal Anomalies; Other Conditions Known to Cause Mental Retardation; Conditions Known to Be Associated with Mental Retardation.

684 National Institute of Neurological Disease and Blindness (NINDB) Collaborative Perinatal Study. (Staff report). *Journal of Learning Disabilities,* 1(1):27-29, 1968.

The obstetrical phase (1953-1966) of the National Institute of Neurological Disease and Blindness Collaborative Perinatal Study was completed when the last baby was born to the 60,000 mothers under study. The next phase involves the analysis of genetic, physical, and social data about the mothers, the course of each pregnancy, and pregnancy outcomes. The children will be followed for 12 years. Analysis of data to date reveals a relationship between low birth weight and smoking and hypertensive disease, a correlation between maternal age and pregnancy outcome, and a need for research on the prevention and treatment of such disorders as congenital toxoplasmosis, toxemia, and hyaline membrane disease. (No refs.) - *C. Rowan.*

685 NORTH, A. FREDERICK, JR. Preventing mental impairment: How can the pediatrician help? *Clinical Pediatrics,* 7(11):670-675, 1968.

The pediatrician should view MR as a result of faulty interaction between the brain and the environment, that is, an imperfect meshing of genetic endowment and familial, sociocultural factors. He may use several intervention strategies to prevent or alleviate mental impairment—proper education for pregnancy and adequate pre- and postnatal care help provide optimal

bodily endowment. The physician should encourage parents to interact comfortably and productively with their children and not impose a strict child-rearing regimen which could inhibit intellectual development. He should recognize those children who have a high risk of deviant development and encourage special education for them. Perhaps more importantly, he must be active in programs of prevention and social action so that every child may have a favorable physical and emotional nurturing environment in which to develop to the maximum of his genetic potential. (9 refs.) - *E.L. Rowan.*

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686 Intensive neonatal care: Bettering the odds for survival. *Medical World News*, 9(9):42-46, 1968.

The reduction of infant mortality rates is a major concern of physicians in the United States. More widespread and comprehensive prenatal and perinatal care is needed to lower the rate of infant deaths. Because of the high cost of the specialized equipment needed for intensive care units for the newborn, it would be helpful to have a regional center to which dangerously ill babies can be brought. A recent practice in which 12-15 sick infants are housed in one large room (instead of in isolated cubicles) allows one nurse to take better care of more patients. The specially trained pediatric nurse is thus enabled, by closer observation, to detect slight changes which may signal trouble in the newborn. The close cooperation of physicians, hospitals, and research personnel is needed in the battle against infant mortality. (No refs.) - *E. F. MacGregor.*

687 For healthier babies: Virginia Apgar leads a national campaign against birth defects. *Medical World News*, 9(46):58-63, 1968.

The Apgar test is an objective method for detecting birth defects in newborn infants; it calls for an immediate, at birth, check of heart rate, respiratory effort, muscle tone, reflex irritability, and color. At the present time, the originator of the test is studying environmental influences on the fetus by having interns' wives make daily reports on environmental factors and perform their own pregnancy tests on a once or twice a month schedule. (No refs.) - *V. G. Votano.*

688 Medical care of children in Poland. In: Association for Childhood Education International. *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, p. 43-44.

A program in Poland provides care for children and for the maintenance of a complete health record from birth to 18 years. Prenatal care begins early in pregnancy and the mother is examined monthly. Children are born in hospitals or "izby porodowe" (special locations for this purpose). At birth, the infant is designated as Poradnia D (healthy baby) or Poradnia D_1 (sick baby) and assigned to an appropriate program and clinic. These clinics are responsible for the child's health until age 7 years. When the child enters school, medical care responsibility shifts to the school physician. All children, upon entering school, are examined by a psychologist. Sick children receive either hospitalization or special schools and educational programs. (No refs.) - *V. R. Shaffer.*

689 PASSARGE, EBERHARD. Advances in human cytogenetics—I. Basic considerations. In: National Foundation-March of Dimes. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, p. 26-37.

Important developments in cytogenetics since 1959 include: the discovery of new congenital malformation syndromes; the recognition of sex chromosome abnormalities; prenatal diagnosis from cultured cells of amniotic fluid; the development of a chromosome map based on chromosome variations and other genetic markers; and studies of chromosome abnormalities in spontaneous abortuses, malignant tumors, viruses, chemicals, and radiation *in vivo* and *in vitro*, and unselected populations. A cytological classification system of chromosomal abnormalities based on anomalies in the number and structure of the chromosomes has been developed. Although the precise causes and mechanisms of chromosomal aberrations are still unknown, recent studies on the effects of aging, age-dependent acquired mosaicism, maternal age and the frequency of nondisjunction, maternal autoimmunity, and parental radiation exposure have increased etiological knowledge. Distributive pairing, double fertilization, and aneusomy by recombination appear to be special mechanisms which are associated with chromosomal abnormality. The results of a cytogenetic survey of the mitotic chromosomes of a normal, adult, Caucasian population in Edinburgh, Scotland, disclosed that from 2 to 3% had a structural variant affecting an autosome, and that 0.5% were carriers of major structural autosomal rearrangements. (146 refs.) - *J.K. Wyatt.*

690 TIPS, ROBERT L., & LYNCH, HENRY T. Genetic counseling in a team setting. In: National Foundation-March of Dimes. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, p. 110-113.

Every practicing physician should be prepared to coordinate a medical genetics team and to provide genetic counseling. Counseling should counterbalance the severe emotional and psychologic disturbances which may develop in patients and their families when a diagnosis of genetic disease is made. The medical genetics team is composed of a medical geneticist, a clinical psychologist, a public health nurse, and a social worker. Types of genetic counseling problems generally encountered include: genetic diseases, autosomally recessive inherited inborn errors of metabolism, and birth defects and cytogenetic anomalies which do not follow classic Mendelian patterns. The typical parental pattern of psychodynamic conflict which follows the diagnosis of a disease with an hereditary etiology is severe shock, initial suppression of knowledge of hereditary transmission, a period of acceptance and adjustment, and a chronic grief syndrome. The

physician is in the best position to provide counseling and should not refer his patients to non-medically trained geneticists. (14 refs.) - *J.K. Wyatt.*

691 FRANCISCO, C.B. Genetics investigations and genetics counseling in mental retardation. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 11, 217-231.

Qualitative or quantitative abnormalities of genes can cause MR. Genetically determined conditions can be due to a single gene (as in PKU) or to multiple gene anomalies. While some conditions are inherited through several generations, others are due to single accidents in cell division. The likelihood of more than one retarded child in a family is much less in the latter case. Genetic counseling must take into account the genetic causality and the probability of a recurrence of MR with more children. The nature of the condition and the mathematical probabilities of its recurrence should be explained in as much detail as possible to the parents. (11 refs.) - *J.M. Gardner.*

MEDICAL ASPECTS—ETIOLOGIC GROUPINGS
Infections, intoxications, and hemolytic disorders

692 GARCIA, APARECIDA G.P. Congenital toxoplasmosis in two successive sibs. *Archives of Disease in Childhood*, 43(232):705-710, 1968.

In 2 successive pregnancies, the conceptuses (a premature, liveborn infant, who died after 24 hours, and a 6-month abortus) showed toxoplasma infection. After the first affected pregnancy, the mother had negative toxoplasmin skin tests, which indicated that the disease occurred late in the first pregnancy. In the 6-month abortus, severe maceration of the fetus made identification of toxoplasma organisms difficult; however, they were found in the chorion of the placenta and umbilical cord and in the fetal adrenals, where characteristic necrotic and calcified foci persisted. In both cases, the placenta was severely damaged and parasites were abundant. (10 refs.) - *M.G. Conant.*

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693 PARRY, WILFRID H. Toxoplasmosis. *Nursing Mirror*, 126(22):25, 1968.

The epidemiology, organism description, clinical symptoms, and prevention of toxoplasmosis are discussed. *Toxoplasma gondii* has been implicated in hydrocephalus, blindness of the newborn, lymphadenopathy, encephalitis, and chronic chorioretinitis. Transmission to humans is thought to occur through infected meat; therefore, more practical serological tests are needed to detect the disease in meat animals. This parasite can be transmitted to a fetus through the placenta, and at birth, can cause jaundice, xanthochromic cerebrospinal fluid, and blood infection in the newborn. *T. gondii* is susceptible to either heat or cold and infection can be easily prevented by proper food preparation methods. (No refs.) - *V.G. Votano.*

No address

694 STARR, JOHN G., & GOLD, ELI. Screening of newborn infants for cytomegalovirus infection. *Journal of Pediatrics*, 73(6):820-824, 1968.

Congenital cytomegalovirus (CMV) infection in infants was screened by a pooled urine method and yielded a 1.57% incidence in a total newborn population of 507. The CMV titer in the urine of infants with congenital infection was positive at a 1:10 dilution; the pooled urine screening method uses a 1:5 dilution and pools up to 5 urine specimens. When a positive result was obtained, the pooled members were contacted and specimens of urine were obtained to identify the infected pool member or members. CMV seems to spread by direct contact rather than by an airborne route. Infection does not appear to cause serious illness in newborn infants (only 1 of 8 infants had clinically evident disease, intracerebral calcifications); however, congenitally infected babies need to be compared with controls in longitudinal studies of MR and neurological sequelae. (9 refs.) - *F.J. McNulty.*

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695 PLOTKIN, STANLEY A., & PASQUARIELLO, PATRICK S. Congenital cytomegalovirus infection associated with multicystic kidney. *American Journal of Diseases of Children*, 118(3):515-517, 1969.

A male infant with kidneys fused in an horseshoe configuration and a multicystic left kidney was found to have intranuclear inclusion bodies in the excised cystic material. Urine culture confirmed a cytomegalovirus infection. This infant also had chorioretinitis, splenomegaly, and inguinal hernia, all of which have been previously demonstrated in congenital cytomegalovirus infections. Whether the multicystic kidney was a result of the infection must remain speculative, but it seems possible in light of the large

number of minor malformations associated with congenital infections. (8 refs.) - *E.L. Rowan.*

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696 Cytomegalic inclusion disease: How often does virus mean illness? *Journal of the American Medical Association*, 206(10): 2224, 1968.

Cytomegalic inclusion disease may be the result of an infancy or childhood infection with cytomegalovirus (CMV). In Great Britain, as high as 10% of studied infants have the infection. CMV may be involved in infectious mononucleosis, hepatitis, polyneuritis, and pericarditis and may present a hazard in immunosuppressive therapy. Children with CMV infection may have transient liver and kidney disorders or symptoms similar to pneumonia and whooping cough. The chronic nature of the disease makes it difficult to determine the importance of CMV infection. Infant infection appears to be associated with prior maternal infection which is not always of recent origin. A relapsing latent infection in the mother may be important, and reactivation of the infection in pregnancy may be the cause of acquired infection in neonates. (No refs.) - *L.E. Bayliss.*

697 GAGNON, RAYMOND A. Transplacental inoculation of fatal Herpes simplex in the newborn: Report of 2 cases. *Obstetrics and Gynecology*, 31(5):682-684, 1968.

Transplacental inoculation of *Herpes simplex* was demonstrated in 2 patients. γ-Globulin given during a 10-day, postpartum period was somewhat effective in treatment of the disease in one patient; however, the other infant died on the seventh treatment day. Virus had been demonstrated in cord blood and placenta of this infant at birth; therefore, immediate cesarean delivery would probably have been of little value. (13 refs.) - *G. Pura.*

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Hartford, Connecticut

698 MacCALLUM, F.O., & PARTRIDGE, J.W. Fetal-maternal relationships in Herpes simplex. *Archives of Disease in Childhood*, 43(229): 265-267, 1968. (Annotation).

Generalized *Herpes simplex* infection in the neonate is almost always fatal, and those infants who do survive are usually brain damaged. The source of infection is usually the mother, and the route of infection may be transplacental, by ascent after rupture of the membranes or by passage of the fetus through an infected birth canal. High levels of maternal antibody may protect the fetus, but this is not always so. A high index of suspicion of *H. simplex* must be maintained, and ulcerations of the maternal genital tract should be carefully investigated. Treatment measures are generally inadequate, but high-titer γ-globulin and systemic idoxuridine may be of value. (13 refs.) - *E.L. Rowan.*

Gibson Laboratories
Radcliffe Infirmary
Oxford, England

699 HAYNES, RALPH E., AZIMI, PARVIN H., & CRAMBLETT, HENRY G. Fatal herpesvirus hominis (Herpes simplex virus) infections in children: Clinical, pathologic and virologic characteristics. *Journal of the American Medical Association*, 206(2):312-319, 1968.

Six children who succumbed to systemic *Herpes simplex* infections presented with various clinical pictures; however, the index of suspicion of *H. simplex* was high and the virus was isolated in all cases. In view of the poor prognosis associated with the natural history of infection, preventive measures are mandatory, and infants must be protected from possible sources of contamination. The virus can be grown in cell culture and identified by chloroform inactivation or typical cytopathogenic effect. Viral-encephalitis-induced, cerebral edema may respond to hypothermia, surgical decompression, or hypertonic solutions. When the diagnosis of herpes is established, these supportive measures and chemotherapy (idoxuridine) may prevent the development of irreversible central nervous system or visceral damage. (16 refs.) - *E.L. Rowan.*

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700 HOOK, ERNEST B., ORANDI, MEHDI, TEN BENSEL, ROBERT W., SCHAMBER, WALTER F., & *ST. GEME, JOSEPH W., JR. Familial fatal varicella. *Journal of American Medical Association*, 206(2):305-311, 1968.

Five siblings, aged 2 to 10 years, developed clinical chickenpox (varicella) over a 2-week period, and 2 of the children died. The clinical picture, supported by autopsy findings in one child, was consistent with varicella pneumonitis. A third sibling had a milder pattern of this pneumonitis, while the other 2 children had a typically benign course. This unusual occurrence of lethal chickenpox has not been explained, but has to be more than coincidental. No obvious immunological deficits were noted in the parents or surviving children. A lethal strain of *Varicella zoster* virus might have been expected to be more widespread. A genetic deficit in host resistance would have had to be varicella-specific as all the children previously had had benign rubella, rubeola, and mumps; however, the occurrence of any one or a combination of these factors cannot be ruled out. (20 refs.) - *E.L. Rowan.*

*1000 West Carson Street
Torrance, California 90509

701 SHEILA, M. Modern cinderella. *Parent-Educator*, December: 1A-3A, 1968.

An 8-year-old, MR girl was selected as "Poster Child" by the Wisconsin Association for Retarded Children. The

child, who had been bright and alert until she contracted measles and chickenpox at 2 1/2 years, became uninterested in her toys, forgetful, and inattentive; at age 4 1/2, she was examined by a physician who diagnosed her as MR and advised institutionalization. The parents, after sharing their grief and experiences with other parents of MRs, decided against this, and the child now attends day school and a summer camp for MRs. Future problems are considered inevitable by the parents as their "special" daughter and 2 other children grow older; however, they choose to accept her as more normal than retarded, to appreciate her and the enlightenment she has provided, and to deal with future problems when they are encountered. (No refs.) - *V. R. Shaffer.*

St. Coletta School for Exceptional Children
Jefferson, Wisconsin

702 NICKEY, LAURANCE N., HUCHTON, PAUL, & McGEE, GORDON. Live virus mumps vaccine in pediatrics. *Texas Medicine*, 64(9):63-65, 1968.

The occurrence of fever in those children who received mumps vaccine was studied. Patients (560) received 0.5 cc of the Jeryl Lynn mumps vaccine. The Ss were between 1 and 12 years of age. The vaccine produced no significant side effects, seroconversion was 100%, and it was safe and effective in producing antibody response. (8 refs.) - *V. G. Votano.*

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703 Single shot hits measles, mumps, and rubella viruses. *Medical World News*, 9(40):38, 1968.

Twenty-eight preschool Ss who participated in a pilot study of a single-shot, live-virus vaccine against measles, mumps, and rubella were effectively vaccinated against measles and rubella and 26 developed protection against mumps. No increase in clinical reactions was noted. The combination vaccine includes the Jeryl Lynn strain (mumps), the Moraten strain (measles), and the HPV-77 strain (rubella). Susceptible sibs (262) and mothers (34—3 pregnant) who were in contact with the Ss failed to develop rubella antibody; however, further large-scale studies should be conducted prior to distribution of the combination vaccine for general use. (No refs.) - *V.R. Shaffer.*

704 TWOMEY, J. Measles vaccination. *British Medical Journal*, 1(5636):116, 1969. (Letter: reply to letter by A.W. Taylor)

Taylor's concern about live, attenuated measles vaccine causing subacute sclerosing panencephalitis (SSP) is unfounded. Even if the live vaccine is proven to carry as much risk of causing SSP as the wild virus, it is difficult to see how one can lose by being vaccinated. (2 refs.) - *A. Huffer.*

Office of Health
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705 HANCOCK, MILLIE P., *HUNTLEY, CAROLYN C., & SEVER, JOHN L. Congenital rubella syndrome with immunoglobulin disorder. *Journal of Pediatrics*, 72(5):636-645, 1968.

A 2 1/2-year-old girl (first hospitalized at 18 mos of age with lymphadenopathy, hepatosplenomegaly, failure to thrive, irritability, photophobia, and a reticular bluish-red rash) was diagnosed as having the congenital rubella syndrome. Maternal rubella had occurred during the seventeenth week of gestation; however, the infant had appeared normal at birth, and no abnormalities were noted until after 3 months of age. In addition, cataracts appeared very late (after 18 mos of age). Severe immunological abnormalities were found in this patient: an increase in IgM, delayed IgG, and no IgA. Rheumatoid factor and cold agglutinins were also found. In spite of the immunological disorders, the infant was able to synthesize some antibodies (19S and 7S) normally. Administration of l-adamantanamine hydrochloride, an antiviral compound, at 4 mg/kg for 77 days initially and 10 months in a second treatment course resulted in clinical improvement—a decrease in gland and organ size and an increase in general well-being. (42 refs.) - *K. Drossman.*

*Department of Pediatrics
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Winston-Salem, North Carolina 27103

706 MENSER, MARGARET A., SLINN, ROBYN F., DODS, L., HERTZBERG, R., & HARLEY, J.D. Congenital rubella in a mother and son. *Australian Paediatric Journal*, 4(3):200-202, 1968.

A 25-year-old female, regarded by herself and by her family as the victim of prenatal rubella, had bilateral cataracts at birth, a dermatoglyphic pattern (100% digital whorls) consistent with congenital rubella, and an extremely high titer of rubella-virus, hemagglutination-inhibition antibody. She gave birth to a son who, at the age of 5 months, exhibited bilateral nuclear cataracts, a widely patent anterior fontanelle, muscular hypotonicity, possible MR, and rubella viuria. Exogenous rubella reinfection probably occurred early in this pregnancy; however, the possibility of endogenous reinfection (25-yr latency) cannot be excluded. (6 refs.) - *E.L. Rowan.*

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707 MEADOW, S.R. Rubella syndrome. *Nursing Mirror*, 126(16): 36-37, 1968.

The congenital rubella syndrome is caused by fetal infection with the rubella virus during the first trimester (60% risk during the first 4 weeks) of pregnancy, but the virus has been shown to survive for the duration of pregnancy and continue as active rubella in the newborn. The most common abnormalities appear to be congenital cataracts, heart disease, and deafness. MR and microcephaly are less commonly found, as are pneumonitis, osteolytic lesions of long bones, thrombocytopenia purpura, myocarditis,

encephalopathy, and jaundice. It is extremely difficult to offer advice about termination of pregnancy because many illnesses mimic rubella without harming the fetus and many rubella infections are subclinical and pass unnoticed. Gamma globulin suppresses symptoms in the mother, but protection of the fetus has not been demonstrated. Abnormalities must be treated symptomatically because there is no anti-rubella drug. Hope for the future lies in the rapid utilization of a vaccine for immunization against rubella. (No refs.) - *E.L. Rowan.*

Royal Alexandra Hospital for Sick Children
Brighton, England

708 Congenital malformations after maternal rubella. *British Medical Journal*, 4(5630):534, 1968. (Editorial)

All cases of rubella in pregnancy do not result in fetal abnormalities; however, there is a 60% chance after infection during the first 4 weeks of pregnancy of having a deformed child. The risk to 16 weeks of gestation is 21%. Rubella can go undetected when there is no rash; subclinical rubella is thought to be the cause of some cases of congenital deafness; deafness is apparently the most frequent defect in first trimester infections. Testing unselected pregnancies for rubella antibody might provide valuable information about this disorder. (8 refs.) - *L.E. Bayliss.*

709 FARQUHAR, JOHN D., PLOTKIN, STANLEY A., & SCHOENGOLD, RONALD J. Cendehill strain of rubella vaccine: Clinical evaluation. *Journal of Pediatrics*, 75(3):412-417, 1969.

The Cendehill strain of rubella vaccine was evaluated in 181 children and 385 young adult females. Only 2 of the 263 susceptible women and 16 susceptible children failed to show an hemagglutination-inhibition antibody response. The children were institutionalized boys and girls between the ages of 1 and 18 years from 1 orphanage and 4 institutions for the MR. About 18 months after immunization with the Cendehill vaccine, 4 vaccinated children and 4 control children were given the unattenuated Brown strain of rubella; none of the vaccinated children developed rubella symptoms, but all 4 controls did. No significant side effects were noted in the children, and a low incidence of side effects occurred among the young women. (10 refs.) - *F. J. McNulty.*

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710 Beginning of the end for rubella. *Medical World News*, 10(20):39-44, 1969.

The rubella virus was first isolated by a viral interference technique in 1961. After the 1964 rubella epidemic, a crash program was instituted to develop a safe vaccine. The viral interference technique is based on the fact that while some viruses are undetectable when acting on cell cultures, they interfere with other virus cell effects. In the summer of 1965, a high-passaged rubella vaccine was given a clinical trial on 8 girls in the Children's Colony, a state institution for MR in Conway, Arkansas. During the months that followed, none of the inoculated girls developed rubella, nor did they have any reaction to the vaccine. They did shed virus in their throats; however, non-vaccinated girls living in the same cottage did not become infected. Additional research is needed in the areas of vaccine administration, booster shots, mutability of the attenuated virus, and duration of the protection. (No refs.) - *F.J. McNulty.*

711 COUR, LES. Rubella eradication in Oregon. *Oregon Health Bulletin*, 47(5):3-5, 1969.

The Oregon State Board of Health has developed plans to eradicate rubella over a 5-year period (1969-1974) by immunizing 450,000 Oregon children with an effective rubella vaccine distributed free to local health departments. The program will: promote immunization for measles, polio, mumps, smallpox, whooping cough, diphtheria, and tetanus; provide personnel to study and predict rubella epidemic areas; and continue the Infant Immunization Surveillance Program of parental notification. Administration of the rubella vaccine to women of child-bearing age is recommended only through private physicians. (No refs.) - *C. Rowan.*

No address

712 A rash of rubella vaccine gains. *Medical World News*, 10(1):16-17, 1968.

A number of rubella vaccines have been developed recently; one strain called HPV-77 gave 90% protection to children exposed to an epidemic. Another strain, RA 27/3, provides protection when inoculated and also when administered as nose drops. Protection is needed to prevent damage to the fetus in pregnancy. Rubella is very dangerous in the first trimester and studies are being conducted to determine whether danger also exists in the second trimester. The fact that rubella is more severe in women than children suggests a hormone disturbance in affected women. Side effects are not considered to be more than bothersome, and if the problem of placental passage is eliminated, HPV-77 can give protection to all human Ss against rubella. (No refs.) - *L. Bayliss.*

713 COOPER, LOUIS Z., MATTERS, BARBARA, ROSENBLUM, JEAN K., & KRUGMAN, SAUL. Experience with a modified rubella hemagglutination inhibition antibody test. *Journal of the American Medical Association*, 207(1):89-93, 1969.

The rubella hemagglutination inhibition (HI) antibody test was modified by pretreating the test sera with a solution of manganese chloride ($MnCl_2$) and heparin sodium instead of kaolin suspension. This modification eliminated the false positive results caused by inadequate removal of nonspecific inhibitors of hemagglutination. The pretreatment of serum with $MnCl_2$-heparin has the following advantages over kaolin in rubella HI antibody testing: false positives in sera

which contain no rubella antibody are eliminated; sera can be tested at lower dilutions, 1:2 and 1:4, to detect low level antibody; and the test is technically easier and faster, can be learned quickly, is reliable, and can be combined with the use of 2-mercaptoethanol to extend the range of retrospective laboratory diagnosis of recent rubella. (20 refs.) - *F.J. McNulty.*

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714 WEIBEL, ROBERT E., STOKES, JOSEPH, JR., BUYNAK, EUGENE B., & *HILLEMAN, MAURICE R. Rubella vaccination in adult females. *New England Journal of Medicine*, 280(13):682-685, 1969.

In all but one of 35 adult susceptible females on a suitable pregnancy control regimen rubella antibody developed after vaccination with HPV-77 rubella virus propagated in cell cultures of duck embryo. In 20 of the 35 women, signs and symptoms consistent with rubella, including rash, arthritis, arthralgia, lymphadenopathy, malaise, and anorexia, developed. The illness was generally mild and transient though knee aspiration and intra-articular administration of hydrocortisone were indicated in one case. Rubella virus was recovered from the aspirated synovial fluid of one woman with arthritis whose knees were aspirated. Two women were treated with oral methyl prednisolone for 5 days. The onset of rash was 12 days after vaccination, on the average, and the beginning of arthritis arthralgia was 16 days. Recovery was complete. (25 refs.) - *Journal abstract.*

Division of Virus and Cell Biology Research
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715 RHIM, JOHNG SIK. Factors influencing rubella virus plaque formation in a rabbit cornea cell line (SIRC cells). *Texas Reports on Biology and Medicine*, 26(3):331-339, 1968.

A plaque assay was used to determine, quantitatively, rubella virus in rabbit cornea (SIRC) cell cultures; the titers obtained by the plaque assay were comparable to the cytopathic endpoint tissue-culture infectious dose method. The reproducibility of the plaque assay was determined by repeating the titration on a separate frozen ampoule of the same virus stock (RV strain) on different days. The plaque assay by this method was quite reproducible. Rubella virus plaques were best obtained by seeding with virus diluted in M-199 (medium containing 1% bovine albumin) containing serum protein. M-199 alone yielded poorer results. There were no differences between Noble and Bacto agars in terms of number and size of plaques. Washing cultures before and after exposure to virus did not affect the plaque counts. A concentration of sodium carbonate ($NaHCO_3$) of 0.23g%-0.45g% gave the optimal number of plaques with rubella virus RV strain in SIRC cells. The susceptibility of rubella virus plaque production in SIRC and continuous rabbit kidney (RK-13) showed that RK-13 cells were more sensitive than SIRC cells. HP-77 virus strain produced plaques in RK-13 cells, but not in SIRC cells; however, RV and M-33 strains produced plaques in both SIRC and RK-13 cells. (18 refs.) - *F.J. McNulty.*

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716 SEVER, JOHN L., FUCCILLO, DAVID A., GILKESON, MARY RUTH, LEY, ANITA, & TRAUB, RENEE. Changing susceptibility to rubella. *Obstetrics and Gynecology*, 32(3):365-369, 1968.

A 1966 collaborative perinatal research study of 500 (CA 13-43 yrs; mean age 23.6 yrs) pregnant women in 10 hospitals throughout the United States demonstrated that the frequency of susceptibility (without antibody) to rubella was approximately 1/2 that found for a similar group studied in 1962. The 1966 study-group had 7.8% susceptibility frequency compared to 17.5% for the 1962 group. The excellent correlation between the virus neutralization method for detecting antibody and the newer hemagglutination-inhibition (HI) method made it possible to use the simpler HI test in the present study. Female patients, 16 years of age or younger, had high HI antibody titers; whereas, the same patients in 1962 were very susceptible. They probably were no longer susceptible because of their experience with rubella in the 1964-1965 epidemic. The difference in susceptibility between Caucasian and Negro patients changed; there were now more susceptible patients among the Caucasian group (10%) than among the Negroes (3.9%). Rubella virus HI antibody was not found in the serum of 7.8% of the women studied. (15 refs.) - *F.J. McNulty.*

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717 Experimental rubella. *Lancet*, 1(7590): 357-358, 1969. (Annotation)

It has been extremely difficult to find a tissue culture medium or animal model in which to study the teratogenic mechanism of the rubella virus; however, rabbit tissue culture and fetal rabbits seem to be affected in the same way as are humans. An intensified study of this model system may not only shed light on the mechanism of infection, but can also be valuable in assessing the comparative teratogenicity of strains of rubella virus. (21 refs.) - *E.L. Rowan.*

718 CLARK, DANNY M., & *ANDERSON, GAIL V. Perinatal mortality and amnionitis in a general hospital population. *Obstetrics and Gynecology*, 31(5):714-718, 1968.

Criteria established for a diagnosis of amnionitis in 212 patients were birth of an infant weighing less than 500 gm, definite rupture of the membrane, purulent amniotic fluid, and fever. The most common indication of amnionitis was premature rupture of fetal membrane. Perinatal mortality in infants of mothers with amnionitis was 6 times greater than in other full-term

infants. Important factors in management of amnionitis are liberal use of intravenous antibiotics and delivery of the infant as soon as possible. In the amnionitic patients, there were 1 death and 6 cases of severe maternal complications. (11 refs.) - *V.G. Votano.*

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719 WILFERT, CATHERINE M. Diagnosis and treatment: Practical diagnostic virology. *Pediatrics*, 42(4):667-671, 1968.

Several techniques are available for the diagnosis of viral infections. Histological examination of pertinent tissue specimens may disclose features of viral infection, such as, inclusions or multinucleated giant cells. Similar features may be observed in cells found in throat scrapings, sputum, urine sediment, or vesicles. Since laboratory search for specific viruses requires inoculation in tissue culture, embryonated eggs, or animals, requests for study should include the source of the specimen and the clinical diagnosis if the proper medium is to be used. Specimens should be handled in a sterile manner and treated as though the virus was labile to heat, acid, or drying. Serological evidence of viral infection may be seen in assay of complement fixation antibodies, hemagglutination inhibition, neutralizing antibodies, and immunofluorescent staining. As techniques are improved, more materials are commercially prepared, and more persons are trained in the laboratory method, the availability of viral diagnosis will be increased. (17 refs.) - *E.L. Rowan.*

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720 GARDNER, P.S. Virus infections and respiratory disease of childhood. *Archives of Disease in Childhood*, 43 (232): 629-645, 1968.

Viral infection is responsible for a significant proportion of respiratory diseases in children. Respiratory syncytial virus, parainfluenza viruses, influenza viruses, adenoviruses, *Herpesvirus hominis* and picornaviruses have been implicated in upper respiratory tract infections, croup, acute bronchitis, acute bronchiolitis, and pneumonia. Epidemiological investigations have included population surveys for prevalence of viral infection, autopsy findings, and the delineation of specific factors, such as age (younger), sex (male), birth-weight (low), socioeconomic status (lower), and season (winter) in the pattern of disease. Laboratory work has concentrated on the identification of specific viral agents by means of tissue culture, complement-fixation, and immunofluorescence. Patients with viral respiratory infections are best managed symptomatically and the use of antibiotics should be reserved for identified pathogenic bacteria. Prevention may someday be possible with the development of specific vaccines or inducers of interferon production. (115 refs.) - *E.L. Rowan.*

University of Newcastle upon Tyne
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721 MEYER, HARRY M., JR. The control of viral diseases: Problems and prospects viewed in perspective. *Journal of Pediatrics*, 73(5):653-675, 1968.

Although viral infections have been present since history began and individual diseases have long been recognized, it has remained for modern laboratory techniques to demonstrate the ubiquity and the number of different viruses, the diversity of different syndromes caused by the same virus, and the ability of different viruses to produce identical symptoms. Early methods of viral control included quarantine (practiced today), wound cauterization, eradication of host animals, and vector control. True vaccines originated in 1798 with the use of cowpox material to protect against smallpox; since then, the field of vaccine development has produced excellent vaccines against polio, measles, mumps, rabies, yellow fever, and smallpox. The first vaccines were associated with a number of adverse side effects such as fever, malaise, headache, and other physical discomforts, and some resulted in enhanced host disease susceptibility. Some vaccine viruses were thought to be implicated in tumor production; other preparations were found to be contaminated with extraneous agents. Nevertheless, the diseases controlled by viral vaccines are severe enough that the risk assumed is considered comparatively small. A large number of experimental vaccines is now being tested and much work in the area of chemotherapy for viral disorders is in progress. One area of considerable promise is the stimulation of interferon production in humans. Future studies should elucidate the role of viruses in many malignant, degenerative, and chronic diseases of humans. (196 refs.) - *K. Drossman.*

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722 Viral infections of the nervous system, *Canadian Medical Association Journal*, 99(3):127-129, 1968.

In medical virology, few new viruses have been discovered; however, an understanding of how virus produces disease has increased. Virus is spread to the CNS by 3 routes: neural, olfactory, and hematogenous. Viruses can penetrate the blood-brain barrier and disease symptoms are caused by a direct effect of virus on the nerve cells or by a reaction in the host. The cytopathic effect of the virus is usually shown by chromatolysis or cell necroses. Hypersensitivity is involved in post-infectious encephalitis. *Herpes simplex* is responsible for 10% of all viral encephalitis and most of the fatal cases. Organized particles resembling polyoma virus have been found in the partly demyelinated nuclei of oligodendroglial cells in patients with progressive multifocal leukoencephalopathy. Viruses have been transferred from man to animals by inoculation of a brain suspension and have been isolated from a number of chronic degenerative diseases. Much interest centers on the role of passenger viruses to neoplasia. (11 refs.) - *L.E. Bayliss.*

723 DONALD, G., & McKENDRICK, W. The treatment of pyogenic meningitis. *Journal of Neurology, Neurosurgery and Psychiatry*, 31(5):528-531, 1968.

A series of 210 cases of pyogenic meningitis was treated with a standard regimen of intramuscular sulfadiazine and penicillin (also given intrathecally for *pneumococcus*) with an overall mortality rate of only 3.3%. Among 111 cases who were followed for a mimimum of 1 year, permanent sequelae were found in only 7 (primarily deafness, cerebellar signs, epilepsy, and 1 MR). The low mortality in pneumococcal cases (12%) is attributed to intrathecal penicillin, and intrathecal cephaloridine shows promise of reducing this mortality even further. Combination therapy so used should theoretically suffer from mutual inhibition; however, success and ease of administration argue against this. Ampicillin has the advantage of single dose therapy, but results are no better and it must be given intravenously. (9 refs.) - *E.L. Rowan.*

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Tottenham, England

724 COCCHI, P., & ULIVELLI, A. Meningitis caused by Neisseria catarrhalia. *Acta Paediatrica Scandinavica*, 57(5):451-453, 1968.

A case is reported of meningitis in a 14-month-old female infant who showed a stiff neck, Kernig's and Brudzinski's signs, and petechiae. *Neisseria catarrhalis* was cultured from the throat and spinal fluid. The patient was treated with penicillin G, erythromycin, and chloramphenicol and was discharged on the twenty-second day. Only 17 cases of meningitis caused by *N. catarrhalis* have been reported previously. (19 refs.) - *M.G. Conant.*

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725 MOSHKOWITZ, ABRAHAM, GRINFELD, ANDRE, *ABRAHAMOV, ABRAHAM, & NISHMI, MOSHE. An outbreak among children of aseptic meningitis caused by echovirus type 9: A clinical and serological study. *Acta Paediatrica Scandinavica*, 57(5):395-400, 1968.

Six patients (CA 15 mos to 10 yrs) from a residential area of Jerusalem, Israel, presented with a clinical picture of acute meningitis with nuchal rigidity, positive Kernig's and Brudzinski's signs, and high temperature. The cerebrospinal fluid showed pleocytosis, mostly mononuclear cells, and, in 5 patients, echovirus 9. This virus was also isolated from a throat swab and rectal swab from the sixth patient. A diagnosis of aseptic meningitis was made in all cases. The first 2 patients were treated with antibiotics, before the etiology was certain, and the last 4 were treated symptomatically; all patients recovered completely. (24 refs.) - *M.G. Conant.*

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726 CERVA, L., NOVAK, K., & *CULBERTSON, C.G. An outbreak of acute, fatal amebic meningoencephalitis. *American Journal of Epidemiology*, 88(3):436-444, 1968.

Between 1962 and 1965, 16 fatal cases of acute, purulent meningoencephalitis occurred in young people who had been swimming in the same indoor pool in Northern Bohemia. The disease resembled meningococcal meningitis; however, no bacteria were recovered and antibiotic therapy failed, as all cases died. In 1967, the suspicion of parasitic involvement was raised, and examination of brain tissue in all cases revealed amebas which had penetrated into the cerebral cortex, thus accounting for the fulminating course of infection. Attempts were made to identify the parasite at the source of infection in order to prevent a recurrence. The physician should consider amebic parasites in meningitis of undetermined etiology. (15 refs.) - *E.L. Rowan.*

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727 KLOUCEK, F., OTRADOVEC, J. Das histopathologische Bild der zentralen chorioretinalen Veranderungen bei subakuter sklerosierender Leukoenzephalitis: Van Bogaert (The histopathological picture of central chorioretinal changes in subacute sclerosing leukoencephalitis: Van Bogaert). *Ophthalmologica*, 157(4):442-450, 1969.

Histopathology of 3 eyes from 2 patients with subacute sclerosing leukoencephalitis (SSLE) demonstrated atrophic retinal changes near the macula with degeneration of the retina to a thin glial membrane, thinning of the choroid, and pigment granules and hyaline masses at the periphery of the lesions. Additional findings included varying pathological changes in the Bruch membrane, absence or reduction of choriocapillaries and presence of eosinophilic, phloxin staining bodies in the inner nuclear and ganglion cell layers. The eyes were fixed with 10% formalin injected into the vitreous humor. Sections were stained with hematoxylineosin, van Gieson, iron-hematoxylin, orcein, phloxin-tartrazine, PAS, Alsatian blue, and colloidal iron. Qualitative findings were the same with some quantitative differences. The patient with the clearest clinical picture ophthalmoscopically also had the most marked microscopic findings: a 2 mm atrophic retinal area with replacement by a glial membrane; loss of visual elements; fine, scattered pigment bodies; deformed visual elements; and inner nuclear and ganglion cell layers with isolated structureless bodies. The plasmocytic elements at the edges of the lesions support the hypothesis of an immunobiologic process in optic disorders in SSLE. (4 refs.) - *C.A. Rizvi.*

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728 COBB, WILLIAM. Depth recording in subacute sclerosing leukoencephalitis. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, p. 275-286.

A 12-year-old boy with epileptic attacks, headaches, and progressive mental deterioration was determined to have

subacute sclerosing leukoencephalitis. The mental deterioration included behavioral disturbances, dementia, and an unusual periodic EEG complex. When cortical biopsy was performed, 2 gold wire electrode leashes were inserted in the right frontal lobe. These electrodes change potential simultaneously during the stereotyped EEG complex recordings. Anatomical and pathological correlations could not be made because the patient lived another 9 months. Since few depth recordings have been done in such patients, this case should give further elucidation of the unusual periodic EEG complex found in this disease. (6 refs.) - *K. Drossman.*

729 BAYER, MANFRED E., BLUMBERG, BARUCH S., & WERNER, BARBARA. Particles associated with Australia antigen in the sera of patients with leukaemia, Down's syndrome and hepatitis. *Nature*, 218(5146):1057-1059. 1968. (Letter)

Electron microscopy studies were performed on particles found in serum fractions which contain Australia antigen. Sera were from patients with acute myelogenous leukemia (1 S), chronic reticuloendotheliosis (1 S), Down's syndrome and acute hepatitis (1 S), and Down's syndrome and chronic anicteric hepatitis (2 Ss). Control sera from 4 healthy persons were also studied. Serum containing Australia antigen was fractionated by the sucrose gradient centrifugation technique. Fractions containing the largest amount of Australia antigen and no protein were examined under the electron microscope. Particles 190-210 Å in diameter were visible, and these particles had surface sub-units about 30 Å in diameter. There were no similar particles in control sera. The fact that the addition of specific rabbit γ-globulin resulted in agglutination of the particles suggests that antigenic sites are present on the particles. In size, these Australia antigen particles compare with viruses of the picorna group. (26 refs.) - *M.G. Conant.*

The Institute for Cancer Research
Philadelphia, Pennsylvania

730 CHILDREN'S BUREAU. *Hemolytic Disease of the Fetus and Newborn Due to Rh Isoimmunization.* Lin-Fu, Jane S. Washington, D.C., Social and Rehabilitation Service, 1969, 15 p.

Within 30 years, a disease with high perinatal and neonatal mortality has been defined, treated, and successfully prevented. Hemolytic disease of the newborn associated with disturbed metabolism of the hematopoietic system is caused by maternal antibodies fighting against fetal cells. Rh-negative women are isoimmunized by Rh-positive fetal cells or sensitized by transfusion of Rh-positive cells. The latter was successfully prevented by the introduction of blood-typing before transfusion. Affected infants have a high rate of stillbirth or neonatal kernicterus leading to permanent central nervous system damage. Exchange transfusion supplemented by early induction of labor limited the severity of the disease, and the development of intrauterine transfusion reduced the risk of stillbirth but was not without risk itself. The discovery that women became sensitized to fetal cells which entered maternal circulation during labor and delivery led to the use of immunoglobulin to prevent this antibody formation. At the present time, a single intramuscular injection of at least 300 μg of commercially available Rh immunoglobulin within 72 hours of delivery of an Rh-positive infant to a previously unsensitized Rh-negative mother will prevent the development of Rh antibodies. We can now reasonably expect elimination of this entity once the present generation of sensitized women has passed the childbearing age. (32 refs.) - *E.L. Rowan.*

731 CLARKE, C.A. The prevention of "rhesus" babies. *Scientific American*, 219 (5):46-52, 1968.

Experiments in butterfly genetics led to the solution of the problem of Rh hemolytic disease in the newborn. The "gene" which controls wing pattern in mimic butterflies is a group of closely linked genes behaving as a single unit and is called a supergene. In man, the Rh genetic units are supergenes composed of 3 closely linked genes. The steps in the development of the Rh incompatibility and the natural immunity to the Rh hemolytic disease which results from ABO incompatibility were discussed. Experiments were conducted with "incomplete" anti-Rh antibody injections which were successful in preventing the production of Rh antibody. The treatments were tried in Rh-negative mothers who received the anti-Rh γ-globulin injection after delivery of their first Rh-negative baby. The antibody was given to 131 mothers within 48 hours after delivery; 6 months later, only one of the 131 mothers produced Rh antibody, whereas, in a control group, 21% were anti-Rh producers. Clinical trials in the United States, Canada, West Germany and Australia produced similar results. The risks of giving anti-Rh γ-globulin to an Rh-negative mother after her first pregnancy appear to be negligble. (No refs.) - *F.J. McNulty.*

University of Liverpool
Liverpool, England

732 LIN-FU, JANE S. New hope for babies of Rh negative mothers. *Children*, 16(1):23-27, 1969.

The use of Rh immunoglobulin in prevention of hemolytic disease is a major advance in medicine for Rh-negative women. Mortality figures for infants born with this disease were 50%, and 5 to 15% of these infants had developed kernicterus. The techniques of exchange transfusion and terminating pregnancy decreased neonatal mortality to less than 5%. Intrauterine transfusion was initiated in 1963; however, this procedure requires a specialized team and cannot be used in all cases. Clinical studies show that one intramuscular injection of a least 1 ml of Rh immunoglobulin within 72 hours after delivery of an Rh-positive infant will effectively prevent Rh sensitization of an Rh-negative mother. Side effects are infrequent and mild. This procedure is not used for women already sensitized to the Rh factor nor to pregnant women. (10 refs.) - *B. Bradley.*

Children's Bureau
Washington, D.C.

733 ALLEN, DONALD M. Prevention of Rh isoimmunization. *Clinical Pediatrics*, 7(11):643-644, 1968. (Commentary)

A successful technique has now been developed to prevent the formation of anti-Rh antibodies in Rh-negative mothers who bear an Rh-positive infant. The observation that ABO incompatibility prevented Rh sensitization suggested that the doubly incompatible cells were destroyed by anti-A or anti-B factors in the maternal circulation. It was then demonstrated in Rh-negative male volunteers that anti-Rh γ-globulin prevented sensitization to later injections of Rh-positive cells. When it was discovered that mothers were not sensitized to fetal cells until the time of labor and delivery, it became feasible to try protecting them with γ-globulin shortly after delivery. It has now been proven that injection of high-titer anti-Rh immunoglobulin safely and effectively prevents Rh immunization in a non-sensitized Rh-negative mother who delivers an Rh-positive baby. (10 refs.) - *E.L. Rowan.*

171 Harrison Avenue
Boston, Massachusetts 02111

734 DUDOK DE WIT, C., BORST-EILERS, E., WEERDT, CH. M., & KLOOSTERMAN, G.J. Prevention of rhesus immunization: A controlled clinical trial with a comparatively low dose of anti-D immunoglobulin. *British Medical Journal*, 4(5629): 477-479, 1968.

In clinical trials to determine the minimum effective dose of anti-D immunoglobulin to prevent Rh immunization, 250 μg of anti-D immunoglobulin were administered to 333 non-immunized Rh-negative women who delivered an Rh-positive child. Only 3 (0.9%) showed active immunization while 5% of the women (17 out of 329) in a control group formed Rh antibodies. Prophylaxis failed in the 3 mothers of the test group because of massive transplacental hemorrhage. A small percent of women were also found to have developed anti-D antibodies before delivery and were, therefore, not amenable to treatment. Further controlled studies might be undertaken to discover a smaller effective dose. (12 refs.) - *E.L. Rowan.*

Blood Transfusion Laboratory
University Hospital
Catharijnesingel 101
Utrecht, The Netherlands

735 POMERANCE, WILLIAM, MOLTZ, ARNOLD, BIEZENSKI, JERZY J., & WOLF, LEWIS. Spectrophotometric analysis of amniotic fluid in Rh-negative women. *Obstetrics and Gynecology*, 31(3):390-396, 1968.

A spectrophotometric analysis test was made on the amniotic fluid in pregnancies complicated by Rh isoimmunization to determine infant survival prognosis; infants falling within the established normal test values survived. Amniocentesis was performed 414 times on 204 Rh-negative patients with Rh-positive husbands. Of these, 166 patients with unaffected infants had 303 amniocentesis performed at 28 weeks or later, and 38 patients with affected infants underwent 111 procedures of which 103 were done at 28 weeks or later. Samples of amniotic fluid were taken every 2 weeks, starting at the twenty-eighth week of gestation. There were 87 patients with unaffected infants and 28 patients with affected infants who had 2 or more tests. The change in optical density (450 mμ) of the amniotic fluid was plotted against weeks of gestation for the patients with unaffected infants; the mean value plus 2 standard deviations established normal values. No woman who gave birth to an unaffected infant had more than 1 abnormal value when more than a single test was performed. The test requires 2 or more abnormal values and more than a single test to eliminate false test results. A series of abnormal readings would indicate fetal involvement and probable perinatal death. Since readings falling within the normal range do not reliably indicate an unaffected infant, they should be supplemented by previous obstetric history, current clinical behavior, and current antibody titers. (10 refs.) - *F.J. McNulty.*

4802 Tenth Avenue
Brooklyn, New York 11219

736 HORGER, E.O., III, & HUTCHINSON, DONALD L. Diagnostic use of amniotic fluid. *Journal of Pediatrics*, 75(3):503-508, 1969.

Amniotic fluid which can now be obtained safely and easily, is a valuable medium for the assessment of fetal health nd disease. The most important application is in the management of the pregnancy of sensitized Rh-negative women. The amount of a bilirubin-like pigment in amniotic fluid has been correlated with the degree of fetal anemia. A rapid rise in bilirubin may be an indication for intrauterine transfusion or termination of pregnancy. Fetal distress is associated with meconium staining of the amniotic fluid which can be observed by amnioscopy. Termination of pregnancy in erythroblastosis fetalis, diabetes, or toxemia depends upon an assessment of fetal maturity, and this is reflected in increased volume of amniotic fluid, increased creatinine concentration, and the appearance of fetal sebaceous cells. Desquamated fetal cells may be examined for sex-chromatin bodies, or they may be cultured for karyotypic or biochemical assay when the possibility of a chromosomal abnormality or an inborn error of metabolism exists. Despite some hopeful results, much work needs to be done in establishing norms for amniotic fluid constituents under normal and abnormal conditions. (14 refs.) - *E.L. Rowan.*

Department of Obstetrics and Gynecology
University of Pittsburgh School of Medicine
Pittsburgh, Pennsylvania 15213

737 SPENCE, B. Intra-uterine transfusion for Rhesus incompatability. *Nursing Mirror*, 126(22):36-37, 1968.

A 26-year-old, Rh-negative patient, whose blood contained Rh antibodies and who had previously had a stillborn infant, was found to have an affected fetus at 34 weeks of gestation. An intrauterine transfusion was performed on the fetus with the hope of preventing stillbirth; 4 days after the transfusion, the infant was born. Two postnatal exchange transfusions were

performed on the infant. Although a short period of growth failure was recorded and the infant weighed only 4 lbs, 6 ozs at discharge from the hospital, she later gained weight satisfactorily and appeared to be developing normally. (No refs.) - *M. Drossman.*

Oldchurch Hospital
Romford, England

738 HEY, E. N., KOHLINSKY, SHEILA, & O'CONNELL, BRIDGET. Heat-losses from babies during exhange transfusion. *Lancet*, 1(7590): 335-338, 1969.

A draft-free room heated to 28-30°C (82-86°F) provides reasonable warmth for most lightly clothed babies, but deep body-temperature falls progressively when an exchange transfusion is performed under these conditions unless active steps are taken to warm the donor blood. The injection of unwarmed blood can cause selective cardiac hypothermia as well as a general fall in deep body temperature. It is possible that the use of cold blood could precipitate sudden circulatory collapse during exchange transfusion. (33 refs.) - *Journal abstract.*

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739 Neonatal peritonitis exchange transfusion. *British Medical Journal*, 5627(4):340-341, 1968. (Editorial)

An uncommon condition, neonatal peritonitis, has recently been reported with increasing frequency after exchange transfusion. Radiographic evidence of pneumoperitoneum and intestinal obstruction requires surgical intervention. Changes in circulation and the vascular structure during exchange transfusion seem to be the most crucial events. Until the mechanism of insult has been completely understood, scrupulously monitored technique must be maintained. (7 refs.) - *E.L. Rowan.*

740 CORKERY, J.J., DUBOWITZ, V., LISTER, JAMES, & MOOSA, A. Colonic perforation after exchange transfusion. *British Medical Journal*, 5627(4):345-349, 1968.

Four infants who received exchange transfusions developed colonic perforations later. All had been well at birth (except for Rh-hemolytic disease), and after passing blood by the rectum, they had become lethargic and had developed a distended abdomen. All recovered following prompt surgical intervention (resection) and the use of antibiotics. It is hypothesized that during injection of blood via the umbilical vein, the central venous pressure is raised by crying or restlessness, and a portion of injected blood is diverted into the portal circulation. This sudden pressure change may cause a vascular insult (arteriospasm, venospasm, or retrograde embolization) resulting in hemorrhagic infarction and perforation. Continuous monitoring of injection pressures might avoid such large and dangerous pressure variations. (23 refs.) - *E.L. Rowan.*

Children's Hospital
Sheffield, England

741 ORME, R.L.E., & *EADES, SHEILA M. Perforation of the bowel in the newborn as a complication of exchange transfusion. *British Medical Journal*, 5627(4):349-351, 1968.

Six infants who received exchange transfusions because of Rh incompatibility and one infant who received prolonged fluid therapy via the umbilical vein later developed "spontaneous" bowel perforations. Four recovered following surgical resection. Early clinical manifestations included refusal to feed, passage of blood rectally, abdominal distension, bilious vomiting, and absent bowel sounds. Later signs were erythema and edema of the anterior umbilical wall, grunting, pallor, hypothermia, and peripheral circulatory failure. Pathological findings resembled necrotizing enterocolitis. The etiology is hypothesized to be on a vascular basis, related either to local vasomotor disturbances or to systemic hypotension. (17 refs.) - *E.L. Rowan.*

*North Devon Infirmary
Barnstaple, England

742 NECHELES, THOMAS F., BOLES, THERESA A, & ALLEN, DONALD M. Erythrocyte glutathione-peroxidase deficiency and hemolytic disease of the newborn infant. *Journal of Pediatrics*, 72(3):319-324, 1968.

Four, unrelated, newborn infants showed very low levels of erythrocyte glutathione peroxidase (GSH-P) activity which was associated with neonatal hyperbilirubinemia and hemolytic anemia. Erythrocyte GSH-P levels in these infants were 22.1 to 26.9, compared with 35.8 to 46.6 in infants with erythroblastosis fetalis, 33.2 to 43.8 for normal infants, and 39.7 to 59.7 for normal adults. Of the 4 patients, 3 showed significant hyperbilirubinemia during the first week of life, all showed over 5% reticulocytosis, and 2 had increased susceptibility to *in vitro* Heinz body formation. All were asymptomatic with no hematological abnormalities at 3 months of age, although a slight GSH-P deficiency persisted. The fact that one of the parents showed a decreased level of GSH-P activity suggests that the infants probably represent the heterozygous state for an autosomal mutation involving GSH-P activity. (10 refs.) - *M.G. Conant.*

171 Harrison Street
Boston, Massachusetts

743 KOTHARI, L.K., JAIN, T.P., LALL, K.B., & SRIVASTAVA, D.K. ABO blood groups and birth weight. *Journal of Pediatrics*, 75(3):480-482, 1969.

Blood type and birth-weight were carefully recorded on 200 consecutive live-born infants (Jaipur, India) in order to determine whether a relationship existed between birth-weight and blood grouping. Group AB infants weighed significantly less than did those of groups A, B, and O, and the AB group was also found less frequently (7%) than other groups in the sample. Dissimilarity between the blood groups of mother and infant did not affect birth-weight. It appears that prematurity is associated with group B in the Western world where that

group is relatively infrequent and with group AB in India where this is the rarest type; however, more extensive investigation of larger samples is essential to establish a true causal relationship. (5 refs.) - *E.L. Rowan.*

Department of Physiology
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744 POCHEDLY, CARL E. ABO hemolytic disease. *General Practitioner*, 38(5):109-115, 1968.

ABO hemolytic disease is a common cause of neonatal hyperbilirubinemia and is twice as prevalent as Rh hemolytic disease. This disorder occurs when the mother's blood group is O or A_2 and the baby's blood group is A_1 or B. Clinical features include jaundice within the first 24 hours of life, elevated reticulocytes and the presence of microspherocytes in the blood, and a negative or weakly positive Coombs' test. There is no single test that will facilitate diagnosis; however, once severe ABO hemolytic disease occurs in a family, all future babies will be affected unless their blood group is O. Complex protective mechanisms relating to fetal antigens, selective permeability of the placenta, and sensitization of the mother exist naturally and insure that every case of mother-fetal ABO incompatibility does not result in ABO hemolytic disease. (No refs.) - *M.G. Conant.*

Meadowbrook Hospital
East Meadow
Long Island, New York

745 FALLSTROM, S.P. Endogenous formation of carbon monoxide in newborn infants: V. On the relation between the carboxyhaemoglobin concentration and the haemoglobin catabolism calculated from simultaneous determinations of carbon monoxide elimination and total haemoglobin. *Acta Paediatrica Scandinavica*, 57(6):487-494, 1968.

The carboxyhemoglobin (COHb) level in the blood of newborn infants was found to be a good index of hemolysis. Thirty-two infants (12 full-term infants without blood group incompatibility and known hemolytic disease; 9 infants with jaundice and ABO incompatibility; and 11 infants with Rh hemolytic disease) had simultaneous determinations made for COHb level, carbon monoxide (CO) elimination by the lungs, and total hemoglobin. A modification of the open circuit CO-method was used to determine the total amount of hemoglobin. Hemoglobin catabolism was calculated from the total amount of hemoglobin and the amount of CO eliminated by the lungs; the assumption is made that CO is formed primarily from degraded hemoglobin. The relationship between the mean value for COHb and the hemolysis rate on newborns agreed with earlier studies on adults. (30 refs.) - *F.J. McNulty.*

Goteborgs Barnsjukhus
Goteborg SV
Sweden

746 McFADYEN, IAIN R., BOONYAPRAKOB, URABALA, & HUTCHINSON, DONALD L. Experimental production of anemia in fetal lambs. *American Journal of Obstetrics and Gynecology*, 100(5): 686-691; Discussion, 691-695, 1968.

The hypothesis that hydrops fetalis is the result of anemia and high output cardiac failure was unsuccessfully tested in fetal lambs. The specific aim was to produce, in a controlled manner, a severely anemic sheep fetus, which would function as an animal model for severe, progressive anemia hydrops fetalis in humans. Such a model could answer these clinical questions: What is the optimal time and frequency of fetal transfusion? What is the rate of blood administration to the fetus? and What is the optimal amount of blood needed to treat this condition? Failure to produce hydrops fetalis in fetal lambs by chronic bleeding may have been due to an insufficiently low hemoglobin level, or to failure to maintain the anemia for a long period of time. A second group of sheep was given phenylhydrazine hydrochloride intravenously to produce a predictable hemolytic anemia; however, hydrops fetalis did not occur. (6 refs.) - *F.J. McNulty.*

St. Thomas's Hospital
London, S.E. 1, England

747 GANDOLFO CARAMELLO, M.T., & MARTINETTO, G. Criteri prognostici e terapeutici nelle iperbilirubinemie neonatali con e senza isoimmunizzazione: Casistica personale (Prognostic and therapeutic criteria in neonatal hyperbilirubinemia with and without isoimmunization: Personal casuistics. *Minerva Pediatrica*, 20(31):1606-1615, 1968.

A survey of the casuistics employed in the treatment of 49 infants in conjunction with a literature review, showed that the rule of 20 mg% bilirubin as a criterion for performing exchange transfusion is questionable when the hyperbilirubinemia is due to ABO incompatibility or when there is no blood incompatibility. In these cases, treatment with cortisone and simple transfusion is generally as effective as exchange transfusion which involves mortality risks in the range of 1.7 to 9.7%. When the bilirubin level (above the critical value) is associated with Rh incompatibility, then an exchange transfusion should be immediately administered to the newborn in order to prevent bilirubin encephalopathy or other sequelae. (28 refs.) - *G. Pura.*

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Turin, Italy

748 COHEN, MICHAEL I., SCHONBERG, S. KENNETH, & WITOVER, STEVEN. The use of plasmapheresis during exchange transfusion for hepatic encephalopathy. *Journal of Pediatrics*, 75(3):431-435, 1969.

The technique of plasmapheresis may be a useful variant to whole-blood exchange transfusion in the management of hepatic encephalopathy and coma associated with acute fulminating hepatitis in children and adolescents. Among 4 adolescent patients in coma, one failed to respond to conventional management with protein

restriction, antibiotics, and fluid and electrolyte balance, and another did not respond after 2 whole-blood transfusions. One of the 2 patients who underwent exchange transfusion with modification of plasmapheresis (85 unit volumes during 3 exchanges) completely recovered cerebral function; however, the patient suddenly relapsed and died 6 days later. Fresh frozen plasma and commercial colloid mixed with reconstituted patient blood cells are more readily available than large volumes of whole blood and can be administered soon after the diagnosis of hepatic coma. No major complications were encountered. Although none of these patients survived, the technique may represent a feasible approach to management of a fatal condition. (15 refs.) - *E. L. Rowan.*

Montefiore Hospital and Medical Center
111 East 210 Street
Bronx, New York 10467

749 CHISHOLM, J. JULIAN, JR., & KAPLAN, EUGENE. Lead poisoning in childhood—Comprehensive management and prevention. *Journal of Pediatrics*, 73(6):942-950, 1968.

The etiologic pattern in lead poisoning, which results in irreversible lead encephalopathy, consists of a toddler with exaggerated oral activities, a mother with inadequate resources to cope with her family's needs, and a neglected slum house with flakes of lead paint within easy reach of the child. Experience in some large cities has shown that an effective program for the prevention and treatment of childhood lead intoxication depends on the coordinated efforts of the local health department, pediatricians, medical social workers, and child guidance workers. For an affected child, hospitalization in a chronic disease facility which has a positive program of child and family rehabilitation is recommended. (20 refs.) - *M.G. Conant.*

Baltimore City Hospitals
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Baltimore, Maryland 21224

750 OBERLE, MARK W. Lead poisoning: A preventable childhood disease of the slums. *Science*, 165(3897):991-992, 1969.

As many as 225,000 children in the United States may have abnormally high blood lead levels. Symptoms include convulsions, vomiting, anemia, and cramps. In severe cases, the bone marrow and central nervous system are damaged, and either death or MR is the result. Treatment with chelating agents is the best therapy. Brain damage occurs in 25% of the children, and if they have lead poisoning a second time, the chance of incurring brain damage increases to almost 100%. The long-term solution to this completely preventable disease is to remove the old leaded paint or to replace the housing completely. Several communities have launched mass screening programs to detect lead poisoning early in young ghetto children. (No refs.) - *B. Parker.*

No address

751 LAMPERT, PETER W., & SCHOCHET, SYDNEY S., JR. Demyelination and remyelination in lead neuropathy: Electron microscopic studies. *Journal of Neuropathology & Experimental Neurology*, 27(4):527-545, 1968.

Chronic lead poisoning neuropathy was investigated by electron microscopy in an experiment utilizing rats (16 experimental and 10 control) fed 4% lead carbonate in their diet for 2 to 12 months. Nerves from experimental animals sacrificed after 6 or more months had Schwann cells with degenerative and proliferative changes which became more pronounced over the length of the experiment. The demyelination in chronic lead poisoning had a pattern similar to that in human disorders of Schwann cell damage, such as, metachromatic leukodystrophy, diphtheric neuropathy, or X-irradiation damage. The cell sheaths began disintegration at the nodes of Ranvier; the lamerlae split and some were transformed into membranous blebs; axons remained normal usually, and the Schwann cell regeneration and remyelination took place as the Schwann cell wrapped around the axon. These new cells often degenerated before remyelination was complete and left a basement lamina along which newly regenerated Schwann cells grew. Repeated degeneration and regeneration probably form the "onion bulbs" found in chronic neuropathies. (43 refs.) - *K. Drossman.*

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752 Lower IQ sequela of acetonuria. *Journal of the American Medical Association*, 206(10):2228, 1968.

Children of non-diabetic mothers with acetonuria during pregnancy may have lower IQs; acetonuria in the third trimester is implicated as the cause. In testing the children (CA 4 yrs) of acetone positive mother, it was found that only 52% had IQs above 90 as opposed to 76% for a control group, 10% were retarded (IQ<70) as compared to 3% in the controls, and 38% were considered "dull" (IQ 70 to 89) as opposed to 21% in the controls. Acetonuria in non-diabetic mothers usually results from fasting. (No refs.) - *L.E. Bayliss.*

753 TAMER, AKRAM, McKEY, ROBERT, ARIAS, DORALYS, WORLEY, LEE, & FOGEL, BERNARD J. Phenothiazine-induced extrapyramidal dysfunction in the neonate. *Journal of Pediatrics*, 75(3):479-480, 1969.

In 2 cases, maternal ingestion of phenothiazines during pregnancy was associated with extrapyramidal dysfunction in neonates. Neither mother displayed neurologic abnormalities, but both infants showed increased muscle tone, tremors, and brisk reflexes soon after birth. Although one infant showed no residual abnormality, the other was borderline MR when tested at age 4 1/2 years. Phenothiazine derivatives are capable of crossing the placenta, and this should be kept in mind when psychotic, pregnant women are treated with such medications. (4 refs.) - *E.L. Rowan.*

Department of Pediatrics
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Miami, Florida 33146

754 ADAM, PETER A.J., & *SCHWARTZ, ROBERT. Diagnosis and treatment: Should oral hypoglycemic agents be used in pediatric and pregnant patients? *Pediatrics*, 42(5):819-823, 1968.

Although oral hypoglycemic agents of the sulfonylurea and biguanide groups are useful in the treatment of maturity-onset diabetes, they are neither indicated nor contraindicated in pediatric and pregnant patients. Sulfonylureas and biguanides enhance insulin action and, in addition, the sulfonylureas stimulate insulin output from pancreatic islet cells; however, neither agent has been conclusively proven to prevent diabetes in susceptible individuals, inhibit progression of the juvenile-onset type, or stabilize labile diabetes in adolescents. Their use subjects a child to undetermined risk (possibly fatal blood dyscrasias with sulfonylureas), close supervision, and perhaps unwarranted anxiety. The use of biguanides alone is contraindicated during pregnancy because they enhance the metabolic ketoacidosis normal in the pregnant woman. Sulfonylureas are teratogenic in some animals and have produced intractable neonatal hypoglycemia following prolonged use by the mother during pregnancy. (18 refs.) - *E.L. Rowan.*

*Cleveland Metropolitan General Hospital
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Cleveland, Ohio 44109

755 BATT, BERNARD. Are large doses of intravenous barbiturates justified for use as premedication in labor? *American Journal of Obstetrics and Gynecology*, 102(4):591-596, 1968.

A comparison of premedications in labor as evidenced by the sedative effect on the mother and the depressant effect on the newborn was carried out with 203 patients. On admission, these women received either intravenous barbiturate (vinbarbital) alone, varying dosages of barbiturate and phenothiazine (propiomazine), varying dosages of phenothiazine and narcotic (meperidine), or placebo. Subjective evaluations of sedative effect on the mother showed "poor" sedation with barbiturate alone or with combinations of barbiturate and phenothiazine. Apgar scores and time of sustained respiration for infants showed depression in those whose mothers had received barbiturates. Best results seem to have occurred in the group which received only phenothiazine. The incidence of neonatal jaundice was the same in all groups. Painless labor without depression of mother or newborn might best be accomplished with a form of continuous regional analgesia. (7 refs.) - *E. L. Rowan.*

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756 Smoking during pregnancy. *British Medical Journal*, 5627(4): 339-340, 1968. (Editorial)

Smaller babies result from the mothers smoking during pregnancy; this is probably because the blood vessels to the placenta are constricted. Fewer nutrients, therefore, reach the fetus. If smoking is stopped early in pregnancy, fetal growth will be normal. (16 refs.) - *V.G. Votano.*

757 BLAIR, A.A.D., HALLPIKE, J.F., LASCELLES, P.T., & WINGATE, D.L. Acute diphenylhydantoin and primidone poisoning treated by peritoneal dialysis. *Journal of Neurology, Neurosurgery and Psychiatry*, 31(5):520-523, 1968.

Permanent cerebellar damage has occurred following diphenylhydantoin intoxication; dialysis may be indicated to clear high levels of the drug from blood and tissue. A 20-year-old male attempted suicide with massive doses of both diphenylhydantoin and primidone. The latter had crystallized in the urine, was of low serum concentration and was, therefore, not implicated in the sequelae. The patient was disoriented and ataxic soon after admission and showed progressive deterioration of consciousness with extreme restlessness. He was sedated with paraldehyde and peritoneal dialysis was begun 55 hours after admission and continued for 35 hours. There was obvious clinical improvement at the end of the procedure, and no neurological abnormality was noted after 2 weeks. (20 refs.) - *E.L. Rowan.*

Department of Pathology
Guy's Hospital Medical School
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758 PATEL, H., & CRICHTON, J.U. The neurologic hazards of diphenylhydantoin in childhood. *Journal of Pediatrics*, 73(5):676-684, 1968.

Twelve children (13 admissions) were hospitalized as a result of diphenylhydantoin intoxication resulting from therapy in 8 and from a single overdose in 4; however, only one of the patients with toxicity during therapy was so diagnosed on admission. Mental symptoms (particularly, drowsiness and behavior disorders), ataxia, and seizures were common manifestations in all children, and nystagmus, blurred vision, diplopia, and dizziness were found in the older ones (6 to 16 yrs). Early signs were infrequent in younger children; however, most of these were MR, and such observations were more difficult to make. Although the clinical picture was confused with that seen in tumors of the posterior fossa and convulsive disorders, all patients with drug toxicity became symptom-free after the drug was discontinued. Neurologic toxicity is not infrequent with diphenylhydantoin, and the physician must be alert to such a possibility. (57 refs.) - *E.L. Rowan.*

University of British Columbia
Vancouver, British Columbia
Canada

Trauma or physical agents

759 CORSON, STEPHEN, & BOLOGNESE, RONALD J. Amniotic fluid pH as an indicator of fetal asphyxia. *Obstetrics and Gynecology*, 31(3):397-402, 1968.

A safe and accurate technique was developed by which amniotic fluid could be continuously monitored. Amniotic fluid pH was correlated with uterine contractions, maternal blood pressure, fetal heart rate, and drugs used during labor. Amniocentesis was performed in 41 gravidas (CA 13-46 yrs; parity 0-9). Most specimens (gestational age 20 through 43 weeks) were collected during labor. Six pregnancies were uncomplicated; the remaining 36 pregnancies were associated with various pathologic states. In 29 Ss, amniocentesis was performed with a 14-gauge Tuohy needle with 2% xylocaine. The abdominal wall layers were infiltrated midway between the umbilicus and symphysis on the side of the palpated fetal limbs. The fluid was taken anaerobically and measured aerobically at the bedside with a Photovolt pH meter. In the remaining 12 patients, a special intrauterine transfusion needle was used and a flexible polyethylene catheter was placed to make serial fluid collections. A 3-way stopcock was used to discard stagnant fluid during determinations. The effect of the sample's exposure to room air was investigated by repeated determination at 5 minute intervals for 3 hours; the greatest discrepancy between the aerobic and the anaerobic methods was 0.05 pH units. Amniotic fluid was demonstrated to be a moderately good buffer. (13 refs.) - *F.J. McNulty.*

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Philadelphia, Pennsylvania 19107

760 TOWBIN, ABRAHAM. Cerebral hypoxic damage in fetus and newborn: Basic patterns and their clinical significance. *Archives of Neurology*, 20(1):35-43, 1969.

Hypoxic brain damage in the fetus or newborn occurs in 2 precise patterns which depend upon gestational age. Systemic hypoxia is most devastating to areas of actively developing germinal matrix tissue and vascular elements where hypoxia leads to circulatory failure and venous congestion with subsequent stasisthrombosis and infarction. In the early fetus and premature newborn (25 to 35 wks gestation), this susceptible area is the deep periventricular tissue, and in the mature fetus and newborn, it is the superficial cortex. Such processes as placental disease and compromised pulmonary function in the premature with subsequent hypoxia are responsible for a significant proportion of neonatal mortality and may leave survivors with chronic brain damage manifest as cerebral palsy, epilepsy, or MR. (20 refs.) - *E.L. Rowan.*

15 Stoughton Street
Boston, Massachusetts 02118

761 MYERS, RONALD E. Cystic brain alteration after incomplete placental abruption in monkey. *Archives of Neurology*, 21(2):133-141, 1969.

After incomplete placental abruption at approximately 120 days of gestation, a rhesus monkey fetus developed severe hypoxia which resulted in destruction of nerve cells within the central nervous system; however, the fetal somatic tissue continued to develop *in utero* for an additional 8 weeks. In the cerebral cortex and white matter, all nerve tissue was destroyed and replaced by connective tissue after blood flow was restored. Coagulation necrosis without replacement occurred in the area of the thalamus, basal ganglia, and rostral midbrain. Destruction of neuronal and oligodendroglial components with preservation of the astrocytic matrix was seen in the rest of the brain stem and spinal cord. Viable neurons were found only in the dorsal root ganglia and myenteric plexi of the gut. Despite severe brain damage the fetus continued to survive *in utero*, but lacked nerve cells to activate breathing or movement after delivery. (5 refs.) - *E.L. Rowan.*

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San Juan, Puerto Rico 00906

762 DE VALERA, EAMONN. Abruptio placentae. *American Journal of Obstetrics and Gynecology*, 100(5):599-606, 1968.

A review of 219 cases of abruptio placentae in which fetal death ensued showed that the most effective treatment for maternal survival was massive blood replacement. The clinical signs of abruptio placentae include vasoconstriction accompanied by wanness, elevated urinary output, weakness, sacral backache, and low blood volume. With respect to the fetus, defective placental attachment causes anoxia which may result in death *in utero* or atelectasis and hyaline membrane disease after delivery. In order to prevent these sequelae

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and to lower fetal mortality in abruptio placentae, rapid maternal blood transfusion should be given to overcome vasoconstriction and to increase the blood supply to those placental areas which are still functioning. The baby should then be delivered by cesarean section before further placental detachment; however, any maternal blood coagulation defect, usually low fibrinogen levels, should be corrected before delivery. (5 refs.) - *K. Drossman.*

No address

763 JACOBSON, IVAN V. Effect of X-rays and hypoxia on the fetus. *Postgraduate Medicine*, 44(4):152-155, 1968.

Fetal exposure to ionizing radiation during the first 42 days of life can result in chromosomal defects, especially in the neuroblast cells, with resultant defects of the central nervous system and eyes. Less is known about the effects of hypoxia during this time, but spontaneous abortion has been associated with impaired uterine circulation. A pregnant woman was admitted for workup of a pulsating paraumbilical mass which proved to be an abdominal aortic aneurysm. The uterus was exposed to between 15 and 25 rads of radiation during diagnostic workup and there was a 90-minute interruption of aortic blood flow during resection. Despite these possible teratogenic exposures, the infant appeared normal. Hard and fast rules about the teratogenic dose of radiation and/or hypoxia are consequently premature. Long term follow-up is mandatory in order to identify defects arising later in life or mutations transmitted to progeny. (16 refs.) - *E.L. Rowan.*

The Roosevelt Hospital
New York, New York 10019

764 REYNOLDS, E.O.R., ROBERTON, N.R.C., & WIGGLESWORTH, J.S. Hyaline membrane disease, respiratory distress and surfactant deficiency. *Pediatrics*, 42(5):758-768, 1968.

Arterial blood gas tensions and pH measurements on 55 infants dying in the newborn period suggest that the factor which determines whether an infant will develop hyaline membrane disease (HMD) is the state of the mechanism responsible for the synthesis of pulmonary surfactant. HMD may occur because this mechanism is too immature to supply enough surfactant, or because it has been damaged by asphyxia at birth, or because of an interaction of these 2 influences. The infants were divided into 3 groups: group 1 were infants without HMD and with surfactant present; group 2 were infants with HMD and a deficiency of surfactant; and group 3 were infants with HMD, but with surfactant. Seven of the 19 infants in group 1 had respiratory distress (RD) at 4 hours of age. Twenty of the 25 infants of group 2 had RD. Nine of the 11 infants in group 3 had RD. There was an excellent correlation between the ability of the lung to retain air and the minimum surface tension of its extract. All lungs which retained more than 60% of the volume of air present at 40 cm water trans-pulmonary pressure after deflation to 5 cm water pressure had minimum surface tension values below 15 dynes/cm. In group 1 infants, surfactant was present by the twenty-fourth week of gestation, and an increase in reserve was produced as term was approached. (36 refs.) - *F.J. McNulty.*

Department of Pediatrics
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765 Respiratory disorders in newborn infants. *British Medical Journal*, 2(5599):228-229, 1968.

Congenital abnormalities, birth asphyxia, meconium aspiration, pneumonia, hyaline membrane disease, massive pulmonary hemorrhage, "apnea of prematurity," and pneumothorax may cause "respiratory distress" in the newborn. Prompt diagnosis and treatment may not only save lives but may also prevent the irreversible cerebral damage which results from prolonged anoxia. (1-item bibliog.) - *E.L. Rowan.*

766 GRAW, ROBERT G., & *DE'AK, WILLIAM R. Respiratory distress syndrome: Protocol for management. *Clinical Pediatrics*, 7(9):510-517, 1968.

Since the introduction of a protocol for management of infants with idiopathic respiratory distress syndrome (hyaline membrane disease) at the Los Angeles Children's Hospital, the mortality rate has dropped from 70% to 45%. Trained nurses care for these infants in a special intensive care unit under direct supervision of a pediatrician. Blood studies are obtained via an umbilical artery catheter, and serum electrolytes and glucose are carefully monitored. Oxygen is supplied to maintain normal arterial oxygen saturation of 100mm Hg, and assisted respiration is indicated only in the most severely affected infants. Acid-base balance (arterial pH over 7.35) and hematocrit (over 40%) are also maintained. An increased interest in the problem, a standardized approach, and a properly staffed and equipped facility are primarily responsible for success. (24 refs.) - *E.L. Rowan.*

*East Los Angeles Child and Youth Clinic
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Los Angeles, California 90063

767 CHAMBERLAIN, GEOFFREY. An artificial placenta: The development of an extracorporeal system for maintenance of immature infants with respiratory problems. *American Journal of Obstetrics and Gynecology*, 100(5):615-626, 1968.

An extracorporeal circuit was designed to support human immature babies with defective respiration, especially those with respiratory distress syndrome (hyaline membrane disease), until the condition is spontaneously corrected. The main features of the circuit included an oxygen-carbon dioxide exchanger (a cellophane membrane tube with a surface area of 0.45 square meters in which circulating blood is oxygenated and mixed with isotonic dialyzing fluid) and a peristaltic pump. The gas exchanger could maintain blood O_2 tension levels above 300 mm at a flow rate of 100

ml/min; correct electrolyte balance could also be maintained by dialysis of ions into and out of the blood. The primary advantage of the peristaltic pump was a decrease in damage to erythrocytes. The circuit was tested in rabits and human fetuses. With human specimens, the best results were obtained with the largest fetuses. For example, 980 gm infant from a uterus of about 26 weeks gestational size was maintained on the circuit until a cannula slipped (5 hrs, 8 mins) and terminated circulation. (37 refs.) - *K. Drossman.*

George Washington University
Washington, D.C. 20006

768 DeSA, D.J. Respiratory distress accompanied by changes in the pulmonary water content and alveolar lining layer in newborn rabbits recovering from oxygen lack. *Biologia Neonatorum*, 13(5-6):271-280, 1968.

Newborn rabbits were subjected to a short period of hypoxia or birth asphyxia and allowed to recover in air. There were no changes in pulmonary water content or histology during the period of oxygen lack, but during the recovery period there was a rise in pulmonary water content accompanied by pulmonary edema and the loss of the fluorescent alveolar lining layer which is thought to be identical with pulmonary "surfactant." The rabbits showed signs of respiratory distress. The changes were transitory in animals exposed to hypoxia but persisted in rabbits asphyxiated in saline. The results are discussed in relation to the respiratory distress syndrome of human infants. (26 refs.) - *Journal summary.*

Gibson Laboratories
The Radcliffe Infirmary
Oxford, England

769 NORMAND, I.C.S., REYNOLDS, E.O.R., STRANG, L.B., & WIGGLESWORTH, J.S. Flow and protein concentration of lymph from lungs of lambs developing hyaline membrane disease. *Archives of Disease in Childhood*, 43(229):334-339, 1968.

The histological appearance of the lungs during the development of hyaline membrane disease in immature lambs is identical to human infants dying of hyaline membrane disease. In 9 immature (approximately 121 days of gestation) and 8 mature (142 days of gestation) fetal lambs the carotid artery was cannulated, and measurements were made of blood pressure, oxygen and carbon dioxide tensions, and pH. In addition, lung lymph was collected. After 30 minutes of lymph collection, artifical ventilation was started and maintained for 1 to 7 hours, and surface tensions of lung extracts were measured. There was delayed removal of fetal lung liquid and retention of protein-containing liquid in the lungs of lambs that developed hyaline membrane disease. The basic factor in the etiology of this disorder in lambs, as in human infants, appears to be a deficiency of pulmonary surfactant. (16 refs.) - *V.G. Votano.*

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770 RAHIMTOOLA, RAZIA J., MIR, SARAH, & BALOCH, S. Low birth weight, the "small for dates" syndrome and perinatal mortality in a low family income group. *Acta Paediatrica Scandinavica*, 57(6):534-536, 1968.

Low family income and lack of adequate antenatal care were implicated in high rates of low birth-weight, prematurity, and neonatal complications found in a government obstetrical unit in Pakistan. From August 1, 1964 to May 31, 1965, 1,100 consecutive deliveries were studied. Mothers in the low-income group were primarily from a refugee area in Karachi; mothers in the upper-income group were from Karachi middle-class government employee groups. Antenatal care was negligible; 0.25% attended at irregular intervals. In 928 of the 1,100 cases, family income was less than Rs 300 or U. S. $60/month. Forty-two percent of the cases were first cousin marriages. All newborns were weighed within 4 hours of birth, a detailed examination was made, and maternal and obstetrical history was discussed in conference with the mother. The prematurity rate was 22.26%; a birth-weight of 2,500 gms or less was present in 117 of the 694 newborns over 36 weeks of gestational age. The stillbirth rate was 4.4%, and neonatal mortality (born alive after 28 wks of gestation and dying during the first wk of life) was 5%. (7 refs.) - *F. J. McNulty.*

Jinnah Postgraduate Medical Centre
Karachi, West Pakistan

771 DALY, JAMES W., & GIBBS, CHARLES E. Cord prolapse. *American Journal of Obstetrics and Gynecology*, 100(2):264-266, 1968.

Obstetrical methods used in dealing with prolapse of the cord were reviewed in 109 patients who were delivered in Air Force hospitals. Regardless of fetal presentation, vaginal delivery is accompanied by a higher incidence of infant damage or death. A transverse lie or compound presentation has the highest mortality rate. There were 11 fetal deaths and 7 damaged infants in those women delivered vaginally, while there were 2 fetal deaths and 1 damaged infant in those women delivered by cesarean section. In addition, there were 8 cases of maternal complications in vaginal delivery, but only 1 maternal case in cesarean section. Cesarean section is indicated as the method of choice in cases of cord prolapse from the standpoint of both mother and child. (2 refs.) - *M. Drossman.*

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772 POSENER, LOUIS J., POW, C.G., JAIN, K.K., & BAU, S. Life threatening disease: An unusual case of severe burns, meningitis, obstructive hydrocephalus and neuroblastoma in a child under age two. *Clinical Pediatrics*, 7(5):288-293, 1968.

A 15-month-old child, severely burned over 50% of his body, was treated with intravenous Hartman's solution, human serum albumin and saline, and antibiotics. Subsequently, a series of skin grafts were done. One month after his first admission, the child developed

Pseudomonas meningitis which was treated successfully with Polymyxin B. Six days after Polymyxin B was stopped, the S's condition deteriorated, and obstructive hydrocephalus was demonstrated with a ventriculogram. A ventriculoatrial shunt was performed with good results. Approximately 3 weeks later, the child demonstrated an ability to smile and respond to stimuli. Almost one year later, the child was again admitted to the hospital because of a reluctance to use the right arm. Chest X-rays demonstrated a large tumor in the upper mediastinum and upper right lung lobe. Treatment was with nitrogen mustard, methotrexate, vitamin B_{12}, and deep X-rays; dramatic clinical and radiologic improvement occurred. Three months later, the S was re-admitted; however, no recurrence of the neoplasm was found. Presently, the child appears to be a normal 4-year-old boy. (8 refs.) - *M.Drossman.*

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773 BUCHSBAUM, HERBERT J. Accidental injury complicating pregnancy. *American Journal of Obstetrics and Gynecology*, 102(5):752-769, 1968.

The management of traumatic injury to the pregnant woman requires close cooperation between the obstetrician and the general or orthopedic surgeon. Although trauma *per se* is rarely implicated in the abortion of a sound fetus, it can alter the course of pregnancy. The treatment of extra-abdominal trauma is modified by pregnancy and may, in turn, modify the delivery. Blunt trauma to the abdomen causes fetal skull fracture and intracranial hemorrhage during late pregnancy when the head is fixed in the pelvis. Penetrating injuries are less common than blunt trauma (the latter are a frequent complication of automobile accidents), but present a more varied clinical picture. Maternal hypotension and hypoxia may have severe effects upon the fetus and require prompt restoration of blood volume and pressure. Abruptio placenta (early placental separation) is an unusual sequel to trauma, but psychological mechanisms in the premature termination of pregnancy require extensive examination. Laparotomy is advocated in blunt and perforating injuries to the abdomen, but cesarean section should be reserved for indications of fetal distress. Postmortem cesarean section (within 5 minutes of maternal death) should be attempted in all cases beyond 28 weeks gestation. (212 refs.) - *E.L. Rowan.*

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774 LARROCHE, J.C. Necrose cerebrale massive chez le nouveau-ne: Ses rapports avec la maturation, son expression clinique et bioelectrique (Massive cerebral necrosis of the newborn: Report on maturation and clinical and bioelectrical aspects). *Biologia Neonatorum*, 13(5-6):340-360, 1968.

Severe and diffuse cerebral lesions are described in 15 full-term newborns who have presented neurological and bioelectrical anomalies. The causes of these neurological symptoms are analyzed: pathologic pregnancies, birth trauma, cardiac anomalies. The abnormal clinical picture was convulsions in every case and *status epilepticus* in 12. In 4 babies of the 5 who had an EEG, severe bioelectrical anomalies were noted. The microscopic lesions are extremely severe, all over the cortex, the basal ganglia, the brain stem and sometimes in the white matter. The cellular necrosis is rather pleiomorphic, the caryorrhectic nuclei frequent, the glial reaction minute. These aspects are characteristic of the newborn. Confronted with the severity of the cerebral lesions, it seems that one should be very reserved in establishing the prognosis of the infants who have experienced a *status epilepticus* in the neonatal period. (15 refs.) - *Journal summary.*

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775 MACKEY, RAY W. Problems in evaluation of residual effects of head injury. In: Khanna, J.L., ed. *Brain Damage and Mental Retardation: A Psychological Evaluation.* Springfield, Illinois, Charles C. Thomas, 1968, Chapter 8, p. 175-182.

Observations of actual day-to-day performance appear to provide a more sensitive index of impairment and a better guide to eventual prognosis following head injury than any data obtained from specific examinations. Psychoneurotic reactions may appear as residuals of organic dysfunction following head injury. A relationship exists between length of coma and length of post-traumatic amnesia, and the duration of post-traumatic amnesia increases with age. Clinical experience tends to support the hypothesis that local cerebral trauma produces a more diffuse, nonspecific intellectual deficit in young children than in adults. (13 refs.) - *J.K. Wyatt.*

776 TAYLOR, RAYMOND G., JR. Identification of variables useful in prognosis for brain-injured children. *Perceptual and Motor Skills*, 27(2):603-606, 1968.

"Antecedent conditions" were evaluated as aids in determining the prognosis of brain-injured children. Ss included 335 brain-damaged patients from the Institutes for the Achievement of Human Potential who had received one year of treatment. Methods of treatment emphasized increased sensory stimulation. Case history forms contained 155 items which included information on medical, neurological, and psychiatric factors. For 335 Ss, only one item—gross evaluation of muscle tone—was related to improvement on the Doman-Delacato profile. Data show that prognosis cannot be based on symptoms or etiology nor can specific brain-injured children who will respond to treatment be identified prior to treatment. Other variables such as type of therapy, motivation, parents, and personality of therapist can be responsible for improvement (6 refs.) - *B. Bradley.*

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Disease or disorders of metabolism, growth, or nutrition

777 PALO, JORMA. Prevalence of phenylketonuria and some other metabolic disorders among mentally retarded patients in Finland. *Acta Neurologica Scandinavica*, 43(5):573-579, 1967.

The incidence of PKU and other metabolic disorders was analyzed for profoundly, severely, and moderately retarded patients in Finland. The population sample consisted of 2 parts: a statistical selection which was representative of the entire population of MR persons in Finland; and a random selection of institutionalized MR patients. All PMR, SMR, and moderately retarded persons with CAs below 70, excluding mongoloids, were analyzed in 57 towns and districts in Finland. This segment was representative socioeconomically, and it included approximately 9% of the population. In addition, 1,036 patients were chosen at random from institutions; therefore, the total data included 2,090 MR persons (mean CA of 19.6; range 1-69 yrs). In 44% of the cases, IQs were less than 20. Fifty percent of the IQs ranged between 20 and 49 and 6% were unknown. The sex ratio was 54% male and 46% female. Screening procedures which included urine and blood analyses found 2 cases of PKU and no cases of homocystinuria. The incidence of PKU was only 0.096% for the MR population in Finland, and this is a lower figure than statistics from most other countries. Data for 5 other abnormalities including cystinuria and peptiduria were also given. (17 refs.) - *B. Bradley.*

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778 EPPS, ROSELYN PAYNE. Phenylketonuria in an American Negro infant. *Clinical Pediatrics*, 7(10):607-610, 1968.

Phenylketonuria was detected in an American Negro infant through routine newborn screening. At 4 weeks of age, she was placed on a low phenylalanine diet, but growth and development remained below the third percentile until the ninth month when they reached the seventh percentile. Periodic psychologic evaluation showed IQs of 54 at 2 months, 70 at 5.2 months, 97 at 8.8 months, 80 at 10.7 months, and 74 at 21 months. Since all her siblings show mental abnormalities and behavior problems, this borderline functioning may represent culturo-familial factors not associated with phenylketonuria. Among Negroes, the incidence of phenylketonuria is estimated at 1 in 100,000. (15 refs.) - *M.G. Conant.*

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779 COHEN, B.E., & SZEINBERG, A. Phenylketonuria in Israel. In: *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 794-800.

Random newborn screening in Israel showed that the incidence of PKU is 1 in 10,000 among non-Ashkenazi Jews and Arabs. No cases were found in Ashkenazi Jews. A total of 62 cases were identified since 1959 by random newborn screening with the Guthrie assay, by screening of institutionalized retarded, by investigation of other MR children, and by examination of families and siblings of known cases. Dietary treatment was started in 26 cases; the remaining cases were considered too old. On the basis of family socioeconomic background, siblings' IQs, and genetic intellectual endowment, institution of the diet at 1-3 months of age was beneficial. Some improvement in IQ may occur when dietary treatment is started at 7-16 months; however, if treatment is started after 16 months, no gain in IQ is observed. Two cases of occult PKU were described. (10 refs.) - *M.G. Conant.*

780 Screening tests for phenylketonuria. *British Medical Journal*, 4(5622):4, 1968. (Editorial)

Normal intellectual and physical development can be assured in infants with PKU if reliable screening tests are used. The Guthrie test proved satisfactory with a positive reaction within 6 days; a modification of this using urine impregnated filter paper has been used. However, the laboratory procedure is more complex. Other simple and economical tests involve detection of o-hydroxphenylacetic acid in urine by paper chromatography and measurement of phenylalanine in the blood by paper chromatography or by spectrofluorimetry; however, a positive reaction does not always indicate PKU. Expert assessment to determine an infant's dietary requirement for phenylalanine must follow positive tests. These tests or their variations can be useful in the detection of other inborn errors of metabolism which, with proper diet, can often be treated successfully. (11 refs.) - *L.E. Bayliss.*

781 CUSWORTH, DAVID C. Screening for phenylketonuria. *British Medical Journal*, 5626(4):324-325, 1968. (Letter)

In determining which phenylketonuria (PKU) screening procedure to use, one must consider such factors as local experience, mechanics, and economics as well as a need to discover other metabolic errors. The low incidence (estimated at 1 in 10,000) of PKU might make the establishment of large automated centers more feasible. (No refs.) - *E.L. Rowan.*

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782 FISCH, ROBERT O., BASCOM, ANTHONY F., BAUER, HENRY, & BRUHL, HEINZ H. The effect of antibiotics on the results of the Guthrie test given to phenylketonuric patients. *Journal of Pediatrics*, 73(5):685-689, 1968.

Antibiotics were found to have no significant effect on the determination of phenylalanine levels with the Guthrie test which is based on inhibition of the growth of *Bacillus subtilis*. Although *B. subtilis* was sensitive to most antibiotics, when blood samples from known phenylketonurics were mixed with antibiotics and subjected to the Guthrie test, the growth of *B. subtilis* was not inhibited. Kanamycin in highest concentration did have some effect regularly, and other drugs did sporadically, if the samples were not properly autoclaved; however, the pattern was distinctly different from a true negative result. Phenylketonuric patients who received oral oxacillin or tetracycline showed no change in Guthrie test reactions during treatment. As long as a proper laboratory technique is maintained, antibiotic administration to the patient should not interfere with the determination of serum phenylalanine. (12 refs.) - *E.L. Rowan.*

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783 HUDSON, FREDERICK P. Phenylketonuria. *Proceedings of the Royal Society of Medicine*, 60(11):1152-1155, 1967.

As a result of mass screening programs on newborn infants, the incidence of PKU in England has appeared to increase from 1/25,000 to 1/10,000. This apparent increase may be due to earlier faulty assessment, a concentration of studies on MRs or low IQ Ss, or an inclusion in the figures of infants with transient hyperphenylalaninemia. A number of untreated children with PKU and normal intelligence have been found and since no controlled trials of diet therapy have been done, the value of strict dietary regimens is questioned. Treatment results on intelligence of PKU children need to be evaluated in terms of parent and sibling IQs, environment, and emotional status of the individual child. The effects of dietary treatment on pregnant PKU women also need further elucidation. (11 refs.) - *M. Drossman.*

Alder Hey Children's Hospital
Liverpool, England

784 FRANKENBURG, WILLIAM K., & *DUNCAN, BURRIS R., COFFELT, R. WENDELL, KOCH, RICHARD, COLDWELL, JAMES G., & SON, CHOON D. Maternal phenylketonuria: Implications for growth and development. *Journal of Pediatrics*, 73(4):560-570, 1968.

Data from 21 non-phenylketonuric (non-PKU) offspring of PKUs showed uniform intrauterine and postnatal growth retardation, with birth-weights corresponding to the twentieth percentile or less, and postnatal weights, heights, and head circumferences near the third percentile in the majority of the cases. Eight cases described in detail were mentally subnormal, with DQ/IQ scores lower than those of their mothers. Oral phenylalanine loading tests in these children revealed that 5 had phenylalanine-tyrosine ratios in the normal range, indicating that the 1-hour phenylalanine-tyrosine ratio does not discriminate between the non-heterozygote and the individual heterozygous for PKU. Of the 69 reported "normal" non-PKU offspring of PKU mothers (phenylalanine level above 20 mg/100 cc), only one had an IQ above 90. PKU should be ruled out in familial MR or familial microcephaly. (21 refs.) - *M.G. Conant.*

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Denver, Colorado 80220

785 ALLAN, J.D., & BROWN, J.K. Maternal phenylketonuria and foetal brain damage: An attempt at prevention by dietary control. In: Holt, K.S., & Coffey, V.P., eds. *Some Recent Advances in Inborn Errors of Metabolism*. London, England, E. & S. Livingstone, 1968, Chapter 2, p. 14-38.

The effect of dietary control on fetal brain damage in the child of a phenylketonuric mother was studied. The mother, of near normal intelligence, had 4 children. Three children were of subnormal intelligence and were born before the diagnosis of phenylketonuria was established. One child was born a year after the diagnosis was made. For 3 months, while non-pregnant, and for the last 5 months of pregnancy, the mother was maintained on a controlled diet (blood phenylalanine level below 10 mg) with Albumaid supplying 60 of the 70 gm of protein and all the carbohydrate and with supplementary minerals, vitamins, and fats. The infant appeared to be normal and, at 9 months, seemed to be of higher intelligence than his siblings who showed abnormal lenses, malar flush, dry skin, microcephaly, and dwarfism. The mechanism of fetal brain damage in maternal phenylketonuria is still unknown, but it appears that dietary control should be instituted at the inception of pregnancy. (20 refs.) - *M.G. Conant.*

786 McKEAN, C.M., BOGGS, D.E., & PETERSON, N.A. The influence of high phenylalanine and tyrosine on the concentrations of essential amino acids in brain. *Journal of Neurochemistry*, 15(3):235-241, 1968.

Adult and infant rats were injected intraperitoneally with phenylalanine or tyrosine, or fed a diet

supplemented with the amino acid to study the effects of acute and chronic high concentrations of these amino acids. The essential amino acid concentrations in brain and blood were determined 15, 30, or 60 minutes after injection or after 21 days on the experimental diet. The injection of 1 mg/g phenylalanine led to significant reductions in brain levels of threonine, valine, methionine, isoleucine, histidine, and tryptophan in both adult and infant animals 30-60 minutes after injection and further reductions were not achieved. Branched-chain amino acid levels were 38-64% of control values. Phenylalanine loading caused depletions in serum amino acid levels in adult rats and unchanged or slightly elevated serum levels in infant rats. Brain-blood ratios of most of the essential amino acids were significantly reduced by phenylalanine loading in infant and adult rats. Administration of tyrosine also caused cerebral amino acid depletions, but these were not as marked as with phenylalanine. (9 refs.) - *M. G. Conant.*

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787 CUMINGS, J.N., GRUNDT, I.K., & YANAGIHARA, T. Lipid changes in the brain in phenylketonuria. *Journal of Neurology, Neurosurgery and Psychiatry*, 31(4)334-337, 1968.

The lipid content of the brain (both white matter and cortex) was analyzed in 4 patients with phenylketonuria. Three showed a slight loss in cerebroside. Analysis of the one fresh specimen also showed an altered fatty acid pattern (decreased 24:1 and increased 24:0 acids) and decreased ethanolamine plasmalogen. This study is in general agreement with others as to lipid changes associated with the patchy microscopic demylination of phenylketonuria, but the etiology still remains unclear. (22 refs.) - *E.L. Rowan.*

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The National Hospital
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788 RICHARDET, J.M., BRISSAUD, H.E., & GALLI, J. Observation familiale d'une hyperphenylalaninemie moderee, sans phenylpyruvicurie, associee a une arrieration profonde (Observation of a moderate familial hyperphenylalaninemia, without phenylpyruvate in the urine, associated with severe mental retardation). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Retardation*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 386-389.

Three brothers with moderate hyperphenylalaninemia and severe MR are described. The parents were consanguineous. Initiation of a low-phenylalanine diet in the youngest brother (CA 4 yrs) did not achieve any clinical improvement. Instead, the diet accentuated intellectual deterioration and provoked the appearance of uncontrollable seizures. The lowest level of phenylalanine in the boys while on normal diets was 10 mg/100 ml. Phenylpyruvic acid was not detected in the urine, and the urinary excretion of 5-hydroxyindoleacetic acid was subnormal. The sibship included 2 clinically normal females and another boy with hyperphenylalaninemia. (3 refs.) - *M.G. Conant.*

789 HSIA, DAVID YI-YUNG. Hyperphenylalaninemia. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 442-444.

Hyperphenylalaninemia during early infancy is found in a variety of syndromes including classical phenylketonuria, hyperphenylalaninemia associated with hypertyrosinemia, hyperphenylalaninemia associated with phenylalanine transaminase deficiency, transient hyperphenylalaninemia, and persistent hyperphenylalaninemia. In classical phenylketonuria, the serum phenylalanine level rises from 2 mg% at birth to 30 mg% or higher by the end of the first week of life. Hyperphenylalaninemia associated with hypertyrosinemia accounts for 90% of all cases of elevated phenylalanine levels found in newborn screening for phenylketonuria. It appears that about 1/5 of all infants with elevated phenylalanine and normal tyrosine levels will fail to show classical phenylketonuria, but will have one of the variants of hyperphenylalaninemia. (14 refs.) - *M.G. Conant.*

790 BERLOW, S. Neonatal hypertyrosinemia and hyperphenylalaninemia. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 445-449.

Heterogeneous causation of biochemical abnormalities is well demonstrated by neonatal hyperphenylalaninemia and hypertyrosinemia. These disorders are a consequence of the relative inactivity of the enzyme *p*-hydroxyphenylpyruvic acid oxidase which results in the tissue accumulation of tyrosine and phenylalanine. In addition, the variables of dietary load of protein and amount of ascorbic acid ingested contribute to hypertyrosinemia which in turn can cause neonatal hyperphenylalaninemia. Dietary treatment consists of additional ascorbic acid and reduced protein intake. Significant increases in CNS disease and/or developmental retardation in hypertyrosinemic infants examined during the second year of life have not been detected, but more longitudinal studies are required. (11 refs.) - *M.G. Conant.*

791 O'FLYNN, MARGARET E. Hyperphenylalaninemia without phenylketonuria. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 450-451.

The case histories of 4 patients with plasma phenylalanine levels of 4-20 mg% and normal tyrosine levels are described. Two female infants showed

phenylalanine levels of 4.9 mg% at 3.5 months and 14.8 mg% at 4.5 months, respectively, with normal tyrosine levels. In both cases, the parents were heterozygotes. In the third case, the patient had a plasma phenylalanine level of 45 mg/100 ml at 4 days of age and was started on a low-phenylalanine diet. After 15 months, she was placed on a regular diet and her phenylalanine level has remained between 4.6 and 10.7 mg/100 ml. A 35-year-old female was found to have a plasma phenylalanine level of 6.6 mg/100 ml during an institutional survey, and she also showed delayed clearance of phenylalanine, phenylpyruvic acid, and *o*-hydroxyphenylacetic acid in the urine. (No refs.) - *M.G. Conant.*

792 WAISMAN, H.A. Hyperphenylalaninemia - The clinical and experimental considerations. In: Richards, B.W., ed. ***Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency***, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 452-454.

Plasma phenylalanine in one patient with hyperphenylalaninemia, but without PKU, remained at the same levels before, during, and after dietary treatment; however, phenylalanine levels in another patient decreased during 10 months of treatment. The plasma level in hyperphenylalaninemia is high because phenylalanine hydroxylase activity is lower in the liver. Experimental work with monkeys has shown that feeding high quantities of L-phenylalanine to a pregnant female induced hyperphenylalaninemia, in both the mother and the fetus. The levels of phenylalanine are about twice as high in the fetus as in the mother. This indicates that an amino acid circulating in the blood at high concentration can be potentially harmful to the fetus, even though the levels are not high enough to harm the mother. The exact mechanism by which brain damage occurs in the presence of elevated phenylalanine levels is still unknown. (4 refs.) - *M.G. Conant.*

793 HAMBRAEUS, L., & WRANNE, L. The plasma phenylalanine level in newborn infants of normal and low birth weights fed on human milk. ***Biologia Neonatorum***, 13(5-6):315-324, 1968.

The variations of the blood levels of phenylalanine were studied during the first weeks of life in 75 infants of varying weight. After birth, the phenylalanine level increased a little in all weight groups, but this was followed by a decrease even from the age of 6-12 hours in infants weighing more than 2,000 gm. In smaller infants, the maximum phenylalanine level was seen at 25-32 hours of age. In all weight groups, phenylalanine concentrations were much lower at 10 days of age than at 0-5 hours of age. This decrease, not previously reported, was thought to be the effect of a low-protein feeding (human milk) and of the addition of ascorbic acid to the feed of the infants weighing less than 2,500 gm. Under these circumstances, infants of low birth-weight do not have phenylalanine levels over 4 mg/100 ml blood at the age of one week. (10 refs.) - *Journal summary.*

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794 GUNTER, R., WRIGHT, E.T., & BROWN, W.J. Protein activators, learning and neural changes in phenylketonuric rats. ***Journal of Mental Deficiency Research***, 12(3):209-215, 1968.

Ten rats fed a diet supplemented with 5% phenylalanine (P-diet) and 10 normal control rats were trained to a visual oddity task using a water discrimination box, then trained to reversal. Two matched subgroups within each group were given a transfer test after intraperitoneal injection of a protein synthesis activator (Ribaminol) or after saline injections for the control groups. The P-diet rats made significantly fewer errors after Ribaminol injection than did the placebo-treated P-diet rats or the normally reared controls, while the Ribaminol-treated normal rats performed more poorly than their placebo-treated controls. The diagnosis of phenylketonuria in the experimental animals was supported by elevated serum phenylalanine levels in the early part of the experiment, by changes in the brain ultrastructure, by erythema, hair loss, and tremor, and by increased activity in younger rats. (19 refs.) - *M.G. Conant.*

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795 KORNREICH, HELEN KASS, SHAW, KENNETH N. F., KOCH, RICHARD, & HANSON, VIRGIL. Phenylketonuria and scleroderma. ***Journal of Pediatrics***, 73(4):571-575, 1968.

A diagnosis of scleroderma and phenylketonuria was made in an 18-month-old girl. Serum phenylalanine was 30 mg% (normal level is 1-2 mg%), and Gesell testing showed mental functioning at 9-15 months. Institution of low-phenylalanine diet at age 19 months produced an improvement in behavior and ability, as well as softening of the sclerodermatous lesions on the trunk and lower extremities; however, new lesions have appeared on the upper extremities. Clinical and laboratory evidence of systemic scleroderma was absent. This is the third reported case of the coexistence of scleroderma and phenylketonuria. Chromatographic studies on urinary amino and phenolic acids on 9 other children with scleroderma showed normal results and ferric chloride tests were negative. The improvement in lesions during dietary treatment suggests more than a chance correlation between these 2 syndromes. (16 refs.) - *M.G. Conant.*

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796 BROWN, D.F. Home placement of a PKU child with severe mental retardation. ***Developmental Medicine and Child Neurology***, 10(6):776-780, 1968.

A longitudinal study of a noninstitutionalized PKU boy with SMR is presented. The S was diagnosed as PKU at 11 months when his phenylalanine serum level was found to be 13.6 mg%; SMR was confirmed by later examinations which consistently revealed a developmental quotient (DQ) of 28-29 (Griffith's test—CAs 3 yrs 2 mos, and 3 yrs 8 mos; Gesell scale—CA

5 yrs 4 mos), and a decreased DQ score of 21 at 6 years 4 months (Gesell scale). Two unsuccessful attempts to administer the Stanford-Binet Intelligence Scale (which fails to measure IQs below 30) were made. In addition, tests on the Vineland Social Maturity Scale revealed social quotients of 36 (CA 4 yrs 11 mos), 31 (CA 5 yrs 3 mos), and 41 (CA 6 yrs 4 mos). The boy is rejected and resented by his father, but, because of the individual attention and love he receives from his mother in a home environment, the S is socially well adjusted and has attended kindergarten where he was readily accepted and understood. He presently attends an occupational center for TMRs; however, his mental and social development are stagnant—he plays alone, is uncommunicative, and has a very short attention span. Residential placement of the child appears inevitable. As in all similar cases, concentrated parental counseling is needed in order to aid the parents in their dilemma of institutionalization and its appropriateness, to facilitate their adjustment to the situation, and to eliminate irreparable damage to their marital relationship. (3 refs.) - *J.P. West.*

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797 DOBSON, JAMES, KOCH, RICHARD, WILLIAMSON, MALCOLM, SPECTOR, RONALD, FRANKENBURG, WILLIAM, O'FLYNN, MARGARET, WARNER, ROBERT, & HUDSON, FREDERICK. Cognitive development and dietary therapy in phenylketonuric children. *New England Journal of Medicine*, 278(21):1142-1144, 1968.

Phenylketonuric children (now 4 yrs of age or older) were given intelligence and language tests to ascertain their present levels of cognitive functioning. These intellectual abilities were then evaluated in relation to the children's ages at the time diets low in phenylalanine were begun. The influence of distorting nontreatment factors, such as family level of intelligence and sociologic variation, was ascertained by computation of a multiple-regression equation analysis. Examination of the data revealed a consistent inverse relation between present intellectual ability and the age of dietary inception. The children treated within one month after birth scored an average of 33 IQ points higher than those for whom treatment was initiated within their fourth and sixth years of life. (6 refs.) - *Journal abstract.*

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798 HACKNEY, I.M., *HANLEY, W.B., DAVIDSON, W., & LINDSAO, L. Phenylketonuria: Mental development, behavior, and termination of low phenylalanine diet. *Journal of Pediatrics*, 72(5):646-655, 1968.

Psychological and biochemical data are reported on 46 treated and untreated cases of phenylketonuria followed for 7.5 years and on 14 cases arbitrarily removed from a low phenylalanine diet for 18-48 months. The 22 untreated cases (20 children, 1 adolescent, and 1 adult) were all severely handicapped in learning and 16 showed behavior disorders. Of the 44 treated cases (including the 20 children assessed in the untreated state), 12 had IQs above 70, but all were mentally handicapped, even those whose IQs fell in the average range. Nine showed autistic behavior, and 4 showed emotional and behavioral disorders. When treatment was started before age 2 months, the eventual IQ was above the level of mental deficiency; however, there remained mental handicaps which resulted in poorer school progress than anticipated. Upon termination of the diet at age 5-8 years, 12 showed no change, 1 showed an increase in IQ, 1 showed a decrease in IQ, and all made satisfactory progress. (43 refs.) - *M.G.Conant.*

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799 ACOSTA, PHYLLIS B., FIEDLER, JOANNE L., & KOCH, RICHARD. Mothers' dietary management of PKU children. *Journal of the American Dietetic Association*, 53(5):460-464, 1968.

In a survey of 47 families with PKU children, difficulties with food preparation, feeding problems, and nutritional deficits were found to be common. The children were from 10 weeks to 11 years old and had been started on the low-phenylalanine diet at ages from 4 days to 8 years. For the most part, meals were planned and prepared by the mothers, 63% of whom reported no planning problems. The main problems were lack of variety, resistance to Lofenalac (a low-phenylalanine food), limited amount servings and unsatisfied hunger, and craving for forbidden foods. Less aversion to Lofenalac and less desire for some high-protein foods were found in children who were placed on the diet before 1 year of age, and before they had tasted such high-protein foods as meat and eggs. The craving for bread was the most widespread, and 55% were using a low-phenylalanine, mail-order bread from Canada. Restaurant meals were handled by ordering appropriate vegetables, by bringing the child's food, or by feeding him beforehand. Of the 41% who attended school, 75% carried their lunch. Priority should be given to food and menu preparation, development of new recipes (especially bread), and counseling of parents on disciplining and teaching the child. (6 refs.) - *E. F. MacGregor.*

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800 POLEY, J.R., & DUMERMUTH, G. EEG—Findings in patients with phenylketonuria before and during treatment with a low phenylalanine diet and in patients with some other inborn errors of amino acid metabolism. In: Holt, K.S., & Coffey, V.P., eds. *Some Recent Advances in Inborn Errors of Metabolism.* London, England, E. & S. Livingstone, 1968, Chapter 4, p. 61-79.

With the possible exception of the Lowe syndrome, no evidence for pathognomonic EEG abnormalities was found by examination of EEG patterns of 31 patients with phenylketonuria (13 receiving dietary treatment),

2 patients with homocystinuria, 2 patients with hyperglycinemia, and 6 patients with the cerebro-oculo-renal syndrome (Lowe). Hypersynchronous abnormalities were observed in 48% of the phenylketonuria patients, without or prior to treatment, and background activity was disturbed in more than 50% of the cases. Dietary treatment produced transient normalization of the EEG which generally reverted to the abnormal pattern during the course of the disease. The progressive course of homocystinuria, hyperglycinemia, and Lowe syndrome is shown by non-specific EEG findings, especially diffuse background activity. (81 refs.) - *M.G. Conant.*

801 McBEAN, M.S., & STEPHENSON, J.B.P. Treatment of classical phenylketonuria. *Archives of Disease in Childhood*, 43(227):1-7, 1968.

The relation between intelligence in 31 true phenylketonuric children, all diagnosed under the age of 7 years, and treatment with diets adjusted to maintain serum phenylalanine levels at 2 mg/100 ml were studied. In general, treatment with low phenylalanine diets was beneficial. Analyses of data on 5 children under prolonged dietary control showed a positive correlation between serum phenylalanine control and subsequent intelligence. Two cases were especially interesting in that dietary control was discontinued: a boy showed progressive deterioration on an ordinary diet and progressive improvement on the low-phenylalanine diet, and psychological testing during each of these periods indicated that intellectual growth was related to dietary control. The other case, a girl showing evidence of more subtle brain damage, did not have unequivocal signs of regression during a period of normal diet, but the impressions of the mother, teachers, and a psychologist led to the low-phenylalanine diet being re-instituted. With respect to age when dietary restriction was started, 40% of the children treated after the age of 6 months had an IQ of more than 60 at age 2, whereas only 12% of a comparable group of untreated cases attained this intelligence level. Furthermore, the IQ was lower in those children whose serum phenylalanine exceeded 12 mg/100 ml after infancy, and also in 1 child with a level less than 2 mg/100 ml during most of his first year. The importance of avoiding both phenylalanine excess and deficiency in phenylketonurics detected in early infancy is also stressed. (31 refs.) - *K. Drossman.*

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802 FULLER, RENEE. Treated phenylketonuria: Analysis of psychological results. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 305-313.

A group of 113 phenylketonuric patients, aged a few days to 12 years, were given periodic psychological examinations (the Gesell test until both language and adaptive categories were above 24 mos and then the Stanford-Binet test) to determine the long-term effects of a restricted phenylalanine diet. Testing was performed at intervals ranging from every 6 weeks for patients under 1 year to once a year for those over 5 years. The IQs of phenylketonurics started on the diet after 6 months of age showed a trimodal frequency distribution with peaks at 80, 50, and 30, while those of patients started on the diet prior to 6 months of age showed a bimodal distribution with the lower peak absent. Plasma phenylalanine levels for all 3 modes were nearly identical and for all 3, the slopes of development and intelligence initially showed a downward trend which continued for the lowest mode. Partial recovery of the slopes occurred after 36 months of age for the middle mode, and complete recovery occurred after 21 months of age for the highest mode. (2 refs.) - *M.G. Conant.*

803 BESSMAN, SAMUEL P. Guest editorial: PKU—Some skepticism. *New England Journal of Medicine*, 278(21):1176-1177, 1968. (Editorial)

A careful analysis by 5 collaborating groups revealed that children with phenylketonuria treated with a low-phenylalanine diet attained a mean IQ of only 80. Higher estimates may have included children with "hyperphenylalaninemia," a syndrome without MR. Untreated children who lived at home attained a mean IQ of 57, suggesting that the environment itself may be a significant factor in preserving or enhancing intelligence. (3 refs.) - *E.L. Rowan.*

No address

804 BICKEL, HORST. Inborn errors of metabolism associated with brain damage—Recent advantages in early detection and prevention of their manifestations. In: Holt, K.S., & Coffey, V.P., eds. *Some Recent Advances in Inborn Errors of Metabolism.* London, England, E. & S. Livingstone, 1968, Chapter 3, p. 39-60.

Satisfactory means of early detection and prevention of phenylketonuria, maple syrup urine disease, and galactosemia, are available. The best screening test for detection of phenylketonuria is the Guthrie microbiological inhibition assay. Phenylketonuria involves the metabolic accumulation of phenylalanine and brain damage of unknown cause. The brain damage can be prevented by institution of a phenylalanine-restricted diet within the first 3 months of life. The dietary treatment usually can be terminated at 7-8 years of age, but the diet should be reinstituted during pregnancy. Maple syrup urine disease involves the accumulation of the keto acids of leucine, isoleucine, and valine in the blood, with serious brain damage and death occurring in late infancy or childhood. The disease can be detected by the leucine inhibition test, and if intake of the 3 essential amino acids is restricted within the first 7-10 days of life, brain damage can be fully or partially prevented. A block in the transformation of galactose-1-phosphate to glucose-1-phosphate, with the accumulation of galactose and galactose-1-phosphate, produces galactosemia with resulting damage to the liver, kidney, eyes, and lenses. Galactosemia can be detected either by paper or thin layer chromatography showing excess galactose, or by a microbiological inhibition test. (53 refs.) - *M. G. Conant.*

805 Disorders of tyrosine metabolism. *British Medical Journal*, 3(5617):511-512, 1968. (Editorial)

Elevated serum tyrosine in the newborn may be symptomatic of hereditary tyrosinemia, neonatal tyrosinemia, or transient hypertyrosinemia. The hereditary form is associated with cirrhosis of the liver and renal tubular defects and is probably an autosomal recessive trait. A high protein intake or protein intolerance seems responsible for the other conditions which apparently have no significant sequelae. Dietary restriction of tyrosine and phenylalanine as well as ascorbic acid supplementation seem of value in all conditions but this requires both careful laboratory monitoring and skilled dietetic advice. (25 refs.) - *E. L. Rowan.*

806 FIELD, C.M.B. Homocystinuria. *Developmental Medicine and Child Neurology*, 10(6):792-793, 1968.

Homocystinuria, a congenital absence of cystathionine synthetase in the liver with consequent elevations of plasma methionine and homocystine, has a clinical picture of ectopia lentis, MR, malar flush, skeletal abnormalities, and thromboembolic episodes. Recognition of the specific defect has led to treatment with a low-methionine, high-cystine diet and suggests the possibility that pyridoxine may reduce the amount of homocystine in the urine. (15 refs.) - *E. L. Rowan.*

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807 KOMROWER, G.M. Homocystinuria: Diagnosis and treatment. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 299-304.

Homocystinuria produces raised plasma levels of methionine and homocystine and reduced levels of cystine; it is caused by the absence of cystathionine due to deficient cystathionine synthetase enzyme. The symptoms include bilateral dislocation of the lenses, genu valgum, iridodonesis, vascular thromboses, a peculiar gait, and MR. After 40 months on a low-methionine, high-cystine diet, a homocystinuric detected at birth showed satisfactory physical progress, an IQ of 100, and no evidence of lens dislocation. An older child, after 18 months of diet therapy, showed a slightly higher IQ, improved EEG pattern, and greatly improved general behavior. (18 refs.) - *M.G. Conant.*

808 HURWITZ, L.J., CHOPRA, J.S., & CARSON, NINA A.J. Electromyographic evidence of a muscle lesion in homocystinuria. *Acta Paediatrica Scandinavica*, 57(5):401-404, 1968.

Electromyography of the deltoid muscle was performed in 9 patients (CA range 1 to 20 yrs) with homocystinuria, in the unaffected, fraternal twin of 1 patient, and in 5 parents of the patients. Seven of the 9 patients had abnormal gaits. There was no spontaneous activity in the form of fibrillation or fasculation potentials. Reduced duration of motor unit potential in the muscle was greater than 20% in 3 patients, but less significant in the other 4. Eight patients showed increased incidence of polyphasic potentials. The duration of action potential was reduced by more than 20% in 3 of the parents, and 2 showed increased incidence of polyphasic potentials. These abnormal electromyographic findings suggest that the muscle lesion in homocystinuria is probably myopathic and is one factor in the peculiar gait present in this disease. (19 refs.) - *M.G. Conant.*

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809 MARTENET, A.C., CURTIUS, H.CH., & ANDERS, P.W. Alterations oculaires de l'homocystinurie. II. Les acides amines de l'humeur aqueuse (Ocular alterations in homocystinuria. II. Amino acids in the aqueous humor). *Archives Ophthalmologique*, 28(3):295-302, 1968.

Samples of serum and aqueous humor from 2 patients with homocystinuria, 2 with capsulary glaucoma, 2 with Marfan's syndrome, and controls were subjected to column chromatography, and the amino acids were separated and quantitated. The controls showed similar amino acid concentrations in both fluids, with asparagine, valine, and tyrosine levels higher in aqueous humor and glycol, proline, glutamic acid, ornithine, and citrulline levels higher in serum. In homocystinuria, the methionine level is higher, the levels of asparagine, valine, serine, and threonine are lower, and a pathological concentration of homocystine exists in serum and aqueous humor. In Marfan's syndrome, asparagine and threonine are slightly increased, serum proline and leucine slightly decreased, and homocystine is absent. In capsulary glaucoma, asparagine, serine, and threonine levels are decreased. (10 refs.) - *M.G. Conant.*

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810 MORREELS, CHARLES L., JR., FLETCHER, BARRY D., WEILBAECHER, ROBERT G., & DORST, JOHN P. The roentgenographic features of homocystinuria. *Radiology*, 90(6):1150-1158, 1968.

Skull roentgenograms of 26 patients with homocystinuria revealed that 1/4 demonstrated definite microencephaly. A relationship may exist between the presence or severity of some of the roentgenographic abnormalities and the mental status of the patients. With the exception of microencephaly, which was noted in SMR patients, no such relationship was found. Roentogenographic features discussed included scoliosis and abnormalities of bones in the extremities, skull, thoracic cage, and chest. In clinical manifestations, arachnodactyly was common, but not as common or severe as in Marfan's syndrome. The affected person appears normal at birth, but skeletal abnormalities

become apparent later. Patients with homocystinuria have been treated by dietary management; however, the efficacy of such therapy needs further elucidation. (26 refs.) - *F.J. McNulty.*

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811 WELCH, J. PHILIP, CLOWER, COURTNEY G., & SCHIMKE, R. NEIL. The "pink spot" in schizophrenics and its absence in homocystinurics. *British Journal of Psychiatry*, 115(519):163-167, 1969.

Schizophrenia may be the result of a transmethylation abnormality in the metabolism of epinephrine which causes a mescaline-like substance such as dimethoxyphenylethylamine (DMPE) or 4-methoxyphenylethylamine (4MPE) to be produced. The DMPE shows up as a "pink spot" by high-voltage electrophoresis followed by paper chromatography. Homocystinuria produces a large "methyl pool," and there is much anecdotal evidence suggesting a familial association between homocystinuria and schizophrenia. Urines were collected and analyzed for DMPE in 18 schizophrenics; however, only 1 showed a "pink spot." Studies on a homocystinuric, schizophrenic woman, her schizophrenic mother, 4 patients homozygous for homocystinuria, and 3 heterozygous for the disorder failed to show evidence of either DMPE or 4MPE. There was no support for previous claims of a high yield of DMPE in schizophrenic patients. (35 refs.) - *E.L. Rowan.*

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812 GATFIELD, P.D., TALLER, ELISABETH, HINTON, G.G., WALLACE, A.C., ABDELNOUR, G.M., & HAUST, M.D. Hyperpipecolatemia: A new metabolic disorder associated with neuropathy and hepatomegaly: A case study. *Canadian Medical Association Journal*, 99(25):1215-1233, 1968.

A child with a degenerative neurological disease and hepatomegaly was found to have grossly elevated blood concentrations of pipecolic acid with mild generalized aminoaciduria. Loading studies indicated there was impaired pipecolic acid metabolism but, contrary to expectations, no impairment of lysine or casein metabolism. This was interpreted as support for the emerging concept that in man the pipecolic acid pathway is a minor route for lysine catabolism. Dietary manipulations did not affect the course of the illness. The main pathological change in the nervous system was demyelination at all levels, especially in the pons, medulla, and cerebellum. Accumulation of lipoid material in glia and neuronal degeneration appeared to be secondary to the demyelinating process. Some unusual problems arising in the assay of pipecolic acid are described and normal values for serum are presented. (25 refs.) - *Journal summary.*

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813 CRUSSI, F. GONZALEZ, ROBERTSON, DAVID M., & HISCOX, JAMES L. The pathological condition of the Lesch-Nyhan syndrome. *American Journal of Diseases of Children*, 118(3):501-506, 1969.

Pathological studies were performed on 2 brothers with the Lesch-Nyhan syndrome (hyperuricemia, self-destructive biting, MR, and motor dysfunction with choreoathetosis). Despite marked neurological symptoms, there were no major destructive lesions or malformations of the brain. The only consistent finding was mild to moderate micrencephaly. White matter and basal ganglia were intact. The kidneys showed marked uric acid crystal deposition with medullary interstitial fibrosis. The absence of marked lesions suggests that early control of hyperuricemia may be possible although the biological basis of the cerebral insult is not known nor is it certain that the brain is normal at birth. (16 refs.) - *E.L. Rowan.*

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814 FUJIMOTO, WILFRED Y., GREENE, MARTIN L., & *SEEGMILLER, J., EDWIN. X-linked uric aciduria with neurological disease and self-mutilation: Diagnostic test for the enzyme defect. *Journal of Pediatrics*, 73(6):920-922, 1968.

A modified assay for hypoxanthine-guanine phosphoribosyltransferase (PRT) in which the incorporation of carbon-14-labeled hypoxanthine into inosinic acid is measured is described. PRT is absent in patients affected with the familial X-linked disorder characterized by compulsive self-mutilation, choreoathetosis, spasticity, and psychomotor retardation. Blood from a single fingerstick is spotted onto Whatman number 3 filter paper, allowed to dry, and cut into uniform size discs using a skin biopsy punch. Each disc is treated with labeled hypoxanthine in buffered solution, then reacted with inosinic acid, the reaction products are separated from the substrate by high voltage electrophoresis, and the spot corresponding to inosinic acid is counted. The range of normal values is clearly distinguishable from that of children with partial loss of PRT activity and from that of children with complete loss of PRT activity. This test specifically identifies the enzyme deficiency which is characteristic of the neurologic disorder described. (6 refs.) - *M.G. Conant.*

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815 FUJIMOTO, WILFRED Y., SEEGMILLER, J. EDWIN, UHLENDORF, B. WILLIAM, & JACOBSON, CECIL B. Biochemical diagnosis of an x-linked disease in utero. *Lancet*, 2(7566):511-512, 1968. (Letter)

Case material was presented regarding *in utero* identification of a human fetus heterozygous for an X-linked metabolic disease. A 34-year-old housewife, a

first cousin of an affected male, received a transabdominal amniocentesis during her 17th gestational week which revealed 30% sex chromatin positive cells. A female fetus was therefore indicated, and this was later confirmed by a 46,XX karyotype colonies which incorporated [^{3}H]-hypoxanthine and 10 which did not. If the fetus had been male, diagnosis of hypoxanthine-guanine phosphoribosyltransferase could have been made well before the 20th gestational week. (11 refs.) - *J. Snodgrass.*

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816 NYHAN, WILLIAM L., SWEETMAN, LAWRENCE, & LESCH, MICHAEL. Effects of the uricogenic agent 2-ethylamino-1,3,4-thiadiazole in hypoxanthine-guanine phosphoribosyl transferase deficiency. *Metabolism: Clinical and Experimental*, 17(10):846-853, 1968.

The effects of 2-ethylamino-1,3,4-thiadiazole (EA-TDA) were examined on 2 patients with the sex-linked disease involving overproduction of purine and absent activity of hypoxanthine-guanine phosphoribosyl transferase (HG-PRT). One patient (10 yrs old) was given 10 mg EA-TDA daily for 3 days, 20 mg for 1 day, and 10 mg for 2 days and 2 μc/kg labeled glycine 24 hours after the first dose of EA-TDA. The second patient (14 yrs old) received 10 mg EA-TDA daily for 3 days. Both patients showed dramatic reactions (glossitis and dehydration) and required immediate therapy, suggesting that administration of EA-TDA to patients with HG-PRT-deficiency is potentially lethal. Both patients showed further elevation of uric acid in blood and urine following drug administration; this reaction was reversed when allopurinol was given. There was also an increase in cumulative conversion of labeled glycine into urinary uric acid, indicating that the increased *de novo* purine synthesis in this condition can be further increased. The role of guanine nucleotide in the feedback regulation of purine synthesis may be involved in this disorder. (17 refs.) - *M.G. Conant.*

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Miami, Florida 33146

817 NYHAN, WILLIAM L. A genetic disorder of uric acid metabolism and cerebral function. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 397-403.

A syndrome with MR is described in which a disorder of purine metabolism accompanies cerebral developmental dysfunction and self-mutilating behavior. The clinical features include severe motor retardation, moderate MR, neurological abnormalities of the athetoid cerebral palsy type, and self-mutilation behavior. The uric acid excretion in the urine is about 9 times normal in this X-linked recessive disorder. The mechanisms by which the neurological and behavioral manifestations of this disease are produced are unknown, but it appears that uric acid is not the offending agent and that some other metabolite accumulates which has the required toxicity. (11 refs.) - *M.G. Conant.*

818 CORNER, BERYL D., HOLTON, J.B., NORMAN, R.M., & WILLIAMS, P.M. A case of histidinemia controlled with a low histidine diet. *Pediatrics*, 41(6):1074-1081, 1968.

Histidinemia was diagnosed at 6 months in a male infant with convulsions, febrile attacks, frequent infections, and a cleft lip and alveolar margin. Dietary treatment was attempted at 7 months by using a diet based on a low-histidine protein hydrolysate with supplementary cystine, methionine, phenylalanine, and tryptophan. There was a marked reduction in plasma and urine histidine to near normal levels and an initial improvement in growth rate, but no effect on mental development (MA was 9 wks at 1 yr of age). Growth stopped at 21 months after a prolonged febrile illness, and death occurred at 41 months following bronchopneumonia. The brain showed cerebral maldevelopment, possibly of prenatal origin, and typical postepileptic encephalopathy. The association of prenatal brain damage and a metabolic disturbance may not be fortuitous, and if this is the case, dietary treatment cannot be successful in cases with prenatal brain damage. (16 refs.) - *M.G. Conant.*

Department of Paediatrics
Southmead Hospital
Westbury-on-Trym
Bristol, England

819 KIHARA, HAYATO, BOGGS, DALLAS E., LASSILA, ELTON L., & WRIGHT, STANLEY W. Histidinemia: Studies on histidase activity in stratum corneum. *Biochemical Medicine*, 2(3):243-250, 1968.

Previous reports on the low levels of stratum corneum histidase activity in histidinemia were confirmed by enzymatic assays on stratum corneum from 46 MR control Ss, 7 parents, 5 sibs, and 5 histidinemic patients. Histidase activity values averaged 52.6, 24.9, 20.6, and 1.5 μmole/hr/gm protein, respectively. The conventional procedure for determining histidase activity was modified with respect to thiol protective reagent, reaction pH, substrate concentration, and estimation of product. The optimum pH for the measurement of the histidase activity (absorbence of 267 mμ) was 8.2. Histidase activity ratio of 2:1:0 for the control, carrier, and affected Ss suggests a gene-dosage relationship. The usefulness of stratum corneum histidase activity for the diagnosis of histidinemia and for heterozygote identification has certain limitations. These include the inability to distinguish clearly the 3 genotypes, the effect of medication on enzyme activity, the problem of probable genetic heterogeneity, and differences in activity when sampling is from different skin surfaces. (15 refs.) - *G. Pura.*

Research Department
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Pomona
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820 WHELAN, DONALD T., & *SCRIVER, CHARLES R. Hyperdibasicaminoaciduria: An inherited disorder of amino acid transport. *Pediatric Research*, 2(6):525-534, 1968.

A French Canadian, 3 1/2-year-old female investigated for small stature and mild malabsorption showed abnormally high urinary excretion of the diaminomonocarboxylicaminoacids, lysine, arginine and ornithine without cystinuria. The hyperdibasicaminoaciduria was identified as a dominantly inherited trait in 13 of 33 family members. Short stature was a common finding in the family pedigree, and no other carriers of the trait had clinical symptoms. Plasma concentrations of dibasicaminoacids were normal. The endogenous renal clearance rates of the dibasicaminoacids, but not cystine, were increased above normal. There is some variability in the expression of the trait and the excretion of arginine or ornithine may be only slightly abnormal; whereas, lysine excretion is always increased. Intestinal absorption of L-lysine, but not of L-cystine, was impaired. The affected family members are considered to be heterozygous for this trait. The homozygous form was not found in this pedigree, but may occur as protein intolerance with dibasicaminoaciduria, a condition recently reported in Finland. The trait provides evidence for genetic control of a membrane transport system shared exclusively by the dibasicaminoacids. It is believed that cystine is transported by a separate system and not transported by the dibasic system. (43 refs.) - *F.J. McNulty.*

*Montreal Children's Hospital
2300 Topper Street
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821 McGUINNESS, R., & SAUNDERS, R.A. Aminoaciduria and lens opacity formation. *British Journal of Ophthalmology*, 52(1):40-42, 1968.

Lens opacity incidence in the general population in Rhondda Fach (Wales) was assessed, and 4 groups were defined: no lens opacities (Group 1); cortical opacities, either senile wedges or juvenile clubs (Group 2); nuclear lens opacities (Group 3); and aphakia or mature lens opacity (Group 4). Group 1 Ss were matched for age and sex with those in Groups 2, 3, and 4. Urine amino acid excretion pattern was determined for the total sample of 339 persons (CA 40 to 70 yrs). The excretion pattern did not vary with age nor nuclear color of the lens. The only difference seen in any subgroup was a significantly higher percentage ($p < .01$) of females with lens opacities excreted trace amounts of valine and aspartic acid when they were compared with Group 1 females. (15 refs.) - *M.G. Conant.*

Medical Research Council
4 Richmond Road
Cardiff, Wales

822 ANDO, T., NYHAN, WILLIAM L., GERRITSEN T., GONG, L., HEINER, D.C., & BRAY, P.F. Metabolism of glycine in the nonketotic form of hyperglycinemia. *Pediatric Research*, 2(4):254-263, 1968.

In nonketotic hyperglycinemia, there is a defect in an enzyme catalyzing the conversion of glycine to carbon dioxide, ammonia, and hydroxymethyltetrahydrofolate. Two patients and 3 controls were given separate intravenous injections of glycine-1-^{14}C and glycine-2-^{14}C and isotope content was determined in respiratory carbon dioxide and in plasma glycine, serine, and the β carbon of serine. In the patients, conversion of the first carbon of glycine to carbon dioxide was slower than in the controls. There was essentially no conversion of the second carbon of glycine to the third carbon of serine in the hyperglycinemic Ss. Infusion of nonisotopic glycine in the controls to produce glycine pools comparable to those in the patients followed by injection of glycine-1-^{14}C gave plasma serine of nearly the same specific activity in each group. (26 refs.) - *M.G. Conant.*

Department of Pediatrics
University of Miami School of Medicine
Miami, Florida 33152

823 GERRITSEN, T., NYHAN, WILLIAM L., & ANDO, T. Recent investigations of two cases of hypo-oxaluric hyperglycinemia. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 296-298.

Glycine-^{14}C was injected intravenously into a patient with hyperglycinemia (hypo-oxaluric type), and the urine amino acid pattern, labeled glycine and serine in the blood, and the activity of expired carbon dioxide were determined. Administration of glycine-1-^{14}C caused no early high formation of labeled CO_2 as was the case with controls, and the maximum was reached in 1 hour. Administration of glycine-2-^{14}C produced no ^{14}C incorporation into the third carbon of serine, indicating no formation of labeled hydroxymethyltetrahydrofolate. These facts are in agreement with the theory that the enzymatic defect is at the site of glycine oxidase. (8 refs.) - *M.G. Conant.*

824 RUSHTON, D.I. Spongy degeneration of the white matter of the central nervous system associated with hyperglycinemia. *Journal of Clinical Pathology*, 21(4):456-462, 1968.

Five infants from 2 families with clinical features of hyperglycinemia and hyperglycinuria are described; the infants, products of full-term pregnancies, were in good condition at birth, but they deteriorated within 48 hours. All exhibited a poor suck reflex, drowsiness, hypothermia, jaundice, and hypotonia. Death ensued by 9 days of age from respiratory failure. In the 4 cases in which necropsy material was available, spongy degeneration of the central nervous system was found in association with lipid-filled glial cells and retarded myelination. The spongy change probably occurred after birth, but the retardation of myelination probably began *in utero*. (16 refs.) - *M.G. Conant.*

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Medical School
University of Birmingham
Birmingham 15, England

825 LINDBLAD, BENGT, LINDBLAD, BO S., OLIN, PATRICK, SVANBERG, BORJE, & *ZETTERSTROM, ROLF. Methylmalonic acidemia: A disorder associated with acidosis, hyperglycinemia, and hyperlactatemia. *Acta Paediatrica Scandinavica*, 57(5):417-424, 1968.

The clinical and biochemical features of methylmalonic acidemia, a newly described inborn error of metabolism, are reported. The female patient showed chronic metabolic acidemia (partly controlled by restriction of the protein intake) and periodic exacerbations with vomiting, dehydration, lethargy, coma, and peripheral circulatory failure. Mild symptoms appeared in the neonatal period and crises, induced by overloading with protein and by trivial acute infections, appeared after age 4 months. During high protein intake, there was marked muscular hypotonia, developmental retardation, and neutropenia which disappeared when acidosis was controlled by restricted protein intake and bicarbonate treatment. At 27 months, the development was normal. Levels of methylmalonic acid in blood and urine were elevated, and hyperglycinemia, hyperglycinuria, and hyperlactatemia were present. Similarities between the 2 syndromes suggest that the metabolic defect in methylmalonic acidemia and the ketotic type of hyperglycinemia is the same (24 refs.) - *M.G. Conant.*

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826 TADA, KEIYA, YOSHIDA, TOSHIO, YOKOYAMA, YOSHIMASA, SATO, TETSUO, NAKAGAWA, HIROSHI, & *ARAKAWA, TSUNEO. Cystathioninuria not associated with vitamin B_6 dependency: A probably new type of cystathioninuria. *Tohoku Journal of Experimental Medicine*, 95(3):235-242, 1968.

A male infant with retarded development was determined to have cystathioninuria which did not respond to vitamin B_6 administration. The S was the product of a normal pregnancy, delivery, and neonatal period; however, his parents were consanguineous. A sister also had retarded development and died at age 3, but 2 other siblings were normal. Chromatography and amino acid analysis indicated elevated serum and urinary cystathionine levels. Urinary and serum B_6 levels were normal. A methionine loading test caused a marked urinary cystathionine excretion without an increase in the inorganic sulfate excretion level. Decreased cystathionase activity was found in homogenates of the infant's liver, and this activity was not increased with the addition of pyridoxal phosphate. Since cystine is the natural product of methionine, it was added to the patient's diet. This particular S is thought to have a mutation which is different from previously reported patients with the disease. (18 refs.) - *E. Gaer.*

*Department of Pediatrics
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Tohoku University
Sendai, Japan

827 SEIP, M., STEEN-JOHNSEN, J., VELLAN, J.E., & GJESSING, L.R. Dietary treatment of cystinosis. *Acta Paediatrica Scandinavica*, 57(5):409-416, 1968.

In 2 male patients (aged 5 and 3.5 yrs) with cystinosis, the amino acid pattern in the urine and serum was investigated before and during treatment with a lentil diet which was low in methionine (20 mg/kg/day) and cystine (10 mg/kg/day) and which supplied 26 gm/day of protein. Before dietary treatment, both patients had an aminoaciduria similar to that seen in the Fanconi syndrome; serum amino acid levels showed less deviation from normal values, but the cystine values were consistently low. Dietary treatment produced a slight tendency toward normality in serum and urine amino acid levels. Clinically, the diet increased well-being, reduced fluid intake and diuresis, and decreased blood urea. Although the growth rate was unchanged, cerebrospinal fluid and the liver showed high levels of cystine. The possibility that these results may be due to a decreased protein intake cannot be discounted. (25 refs.) - *M.G. Conant.*

Department of Paediatrics
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Oslo, Norway

828 EMERY, F.A., GOLDIE, L., & STERN, J. Hyperprolinaemia type 2. *Journal of Mental Deficiency Research*, 12(3):187-195, 1968.

Clinical, biochemical, and electroencephalographic observations on an 18-year-old female with hyperprolinemia type 2, associated with a deficiency of Δ^1-pyrroline-5-carboxylic acid dehydrogenase, are reported. The girl had mild MR, petit mal epilepsy, a raised level of plasma proline, greatly increased urinary proline, and moderately increased urinary hydroxyproline, glycine, and Δ^1-pyrroline-5-carboxylic acid. The EEG showed the 3 cycles/second spike and wave pattern of classical petit mal. This EEG pattern has been associated only with hyperprolinemia. The S's parents were consanguineous. Parents and siblings were normal, except for a sister who died at age 2 years 11 months of a disease which was diagnosed as acute encephalitis, but which was probably also hyperprolinemia type 2. This disease differs from hyperprolinemia type 1 in that deafness and renal disease are absent. (8 refs.) - *M.G. Conant.*

Queen Mary's Hospital for Children
Carshalton, Surrey
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829 ROKKONES, TORGEIR, & LOKEN, AAGOT CHRISTIE. Congenital renal dysplasia, retinal dysplasia, and mental retardation associated with hyperprolinuria and hyper-OH-prolinura. *Acta Paediatrica Scandinavia*, 57(3):225-229, 1968.

A female child with congenital retinal dysplasia and renal dysplasia, MR, and hyperprolinuria, is reported. The child appeared autistic with arrested mental and physical development. Examination of amino acids in the urine 5 months prior to death revealed large quantities of proline and hydroxyproline which had

been reported in other similar cases. Consanguinity in the family pedigree suggests a recessive gene which, associated with a family history of nervous diseases, raises the question of whether one recessive gene may predispose the individual for psychiatric diseases. Children exhibiting blindness or autism should be screened for the metabolic proline defect; appropriate therapy, possibly intermittant hemodialysis, should be instituted immediately for those cases detected. (12 refs.) - *W. Asher.*

Central Laboratory
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830 GOODMAN, STEPHEN I., & O'BRIEN, DONOUGH. Transient infantile hypermethioninemia. *Pediatrics*, 42(3):528-529, 1968.

An otherwise normal premature male infant showed transient marked neonatal hypermethioninemia (1.31 μM/ml vs a normal level of 0.05 μM/ml) during the eleventh week of life. There was no evidence of jaundice, hepatomegaly, or ascites. Within 2 weeks, the methionine level had decreased to 0.11 μM/ml, and the levels had decreased to normal by 10 weeks after discharge. Blood phenylalanine and tyrosine levels, which had also been slightly elevated, had also dropped to within normal limits. Thus, elevation of serum methionine does not necessarily reflect the presence of homocystinuria, hereditary tyrosinemia, or severe liver disease. (9 refs.) - *M.G. Conant.*

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831 LEVY, HARVEY L., SHIH, VIVIAN E., MADIGAN, PHYLLIS M., KAROLKEWICZ, VALERIE, CARR, JANE R., LUM, ANN, RICHARDS, AGNES A., CRAWFORD, JOHN D., & MacCREADY, ROBERT A. Hypermethioninemia with other hyperaminoacidemias. Studies in infants on high-protein diets. *American Journal of Diseases of Children*, 117(1): 96-103, 1969.

Blood filter paper chromatography and the Guthrie bacterial inhibition assay of newborns and 4- to 10-week-old infants in the Massachusetts Metabolic Screening Program detected 18 infants (4-10 wks old) with marked hypermethioninemia as well as slight to moderate elevation of most other plasma free amino acids and moderate elevations of serum urea nitrogen and alkaline phosphatase levels. In each case, the blood pattern was normal shortly after birth. The infants with elevated methionine levels had protein intakes greater than 7 gm/kg/day, and most were greater than 9 gm/kg/day at the time the hypermethioninemia was detected. Adjustment of the daily protein intake to 3-4 gm/kg produced normal plasma amino acid, serum urea nitrogen, and alkaline phosphatase levels. Intentional reinstitution of a high protein diet in one case induced mild hyperaminoacidemia and azotemia. The 18 infants showed normal physical and mental development with the exception of a premature child weighing 3 lb 14 oz at birth. (19 refs.) - *M.G. Conant.*

Massachusetts General Hospital
Boston, Massachusetts 02114

832 BEUTLER, ERNEST. Galactosemia. *American Journal of Clinical Nutrition*, 21(9):923-925, 1968.

Galactosemia is caused by an hereditary lack of a vital enzyme, galactose-1-phosphate uridyl transferase, with a resultant accumulation of galactose and its incomplete metabolites in the brain, liver, and lens. The enzyme is normally present in erythrocytes and, although a reliable screening test is available, preliminary establishment of population frequency of the defect (estimated at 1 in 70,000) is necessary to determine the practicality of such mass screening. Early institution of dietary therapy (restriction of galactose) is essential because some lesions are irreversible. Galactose restriction for the first 3 or 4 years of life, and then gradual relaxation of diet has been done without adverse effect. Perhaps alternate pathways of galactose metabolism become operative during this time. Long-term clinical studies are needed to establish an optimal management program. (19 refs.) - *E.L. Rowan.*

City of Hope Medical Center
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833 KOMROWER, G.M. GALACTOSEMIA. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 804-807.

Of 13 galactosemic children, 3 who had low IQs were diagnosed late, and 2 of these were not treated satisfactorily after diagnosis. The remaining 10 included 2 children with IQs above 100 and 8 children with scores of 65-90, lower scores than those of their unaffected siblings and parents. The children showed clumsiness, poor coordination and restlessness, some visual-perceptual problems, and timidity. Of 11 galactosemic children under supervised dietary control for 3-15.5 years, the majority had IQ scores of 80-90 and scores which decreased with age. Five exhibited behavioral difficulties and one had been incorrectly diagnosed at birth. In pregnant women who have previously given birth to a galactosemic child, milk intake should be restricted or avoided. Good dietary control will allow satisfactory physical development and near normal mental development. (No refs.) - *M.G. Conant.*

Royal Manchester Children's Hospital
Manchester, England

834 RAIVIO, KARI O., & HALLMAN, NIILO. Neonatal hypoglycemia: I. Occurrence of hypoglycemia in patients with various neonatal disorders. *Acta Paediatrica Scandinavica*, 57(6):517-521, 1968.

Blood glucose determinations performed on 964 newborns admitted to the Children's Hospital (Helsinki, Finland) revealed 55 (5.7%) to have significant hypoglycemia (at least 2 blood glucose level measurements below 20 mg/100 ml). High-risk factors included dysmaturity (birth-weight below the tenth percentile for gestation), maternal diabetes, and a moribund condition due to other factors such as

cerebral hemorrhage. Screening of these infants, infants with erythroblastosis, the smaller of discordant twins, and infants whose mothers have toxemia should be done regardless of symptomatology because marked symptoms of hypoglycemia usually do not appear for several hours or days after the depression of blood glucose levels. Prevention of the cerebral damage which might result from prolonged hypoglycemia is adequate reason for monitoring blood glucose levels in high-risk infants. (23 refs.) - *E.L. Rowan.*

Children's Hospital
University of Helsinki
Helsinki
Finland

835 RAIVIO, KARI O. Neonatal hypoglycemia: II. A clinical study of 44 idiopathic cases with special reference to corticosteroid treatment. *Acta Paediatrica Scandinavica*, 57(6):540-546, 1968.

Idiopathic hypoglycemia (blood glucose less than 20 mg/100 ml) was noted in 44 newborns regardless of symptomatology. Significant predisposing factors included being male, dysmaturity (birth-weight below the tenth percentile for gestation), and maternal toxemia. Symptoms were generally not noticeable during the first day of life, but jitteriness, tremors, respiratory irregularities, and exaggerated Moro reflex were noted in untreated admissions after this time. When hydrocortisone was given as a supplement to standard treatment with glucose infusion, the period of hypoglycemia was significantly shortened. Despite this early treatment, 4 infants were noted to be retarded within 6 months. Consequently, there is no justification for an expectant attitude in infants at risk of hypoglycemia, and screening without waiting for symptoms of distress must be encouraged in order to prevent potential cerebral damage. (17 refs.) - *E.L. Rowan.*

Children's Hospital
University of Helsinki
Helsinki
Finland

836 ONG, BEALE, & BURDICK, CLAUDE O. Clinicopathologic conference. *Texas Medicine*, 64(9):82-87, 1968.

A 6-year-old boy who had a 4-year history of convulsions associated with repeated attacks of hypoglycemia was cured of his hypoglycemia by resection of 70% of the pancreas. In the 2 years since surgery, the boy has had no convulsions, and his mother and his pediatricians feel there is an improvement in his behavior and his intellectual functions. Light and electron-microscopy of the pancreatic islet cells showed crystalloids in the β cells. (4 refs.) - *F.J. McNulty.*

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837 HAGBERG, BENGT, SOURANDER, PATRICK, & SVENNERHOLM, LARS. Late infantile progressive encephalopathy with disturbed polyunsaturated fat metabolism. *Acta Paediatrica Scandinavica*, 57(6):495-499, 1968.

Postmortem examination of a 6-year-old girl who had had symptoms of progressive encephalopathy of late onset (approximately age 1) revealed pronounced changes in both gray and white matter of the brain and marked disturbances of brain lipids, particularly linolenic acid. The clinical picture of early MR, loss of speech, seizures, and regression of motor development suggested widespread neurological involvement. Brain biopsy indicated a neurolipidosis, but histochemical studies ruled out all known disorders. Marked cellular derangement, a significant reduction in all cortical lipids especially those in the linolenic acid series, and granular deposits, characterized as free fatty acids and unsaturated polymerized and oxidized fatty acids, were present. This case may be a second example (the other is the odor-of-sweaty-feet syndrome) of a genetic error in fatty acid metabolism. (9 refs.) - *E.L. Rowan.*

Department of Pediatrics
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838 AAGENAES, Ø., VAN DER HAGEN, C.B., & REFSUM, S. Hereditary recurrent intrahepatic cholestasis from birth. *Archives of Disease in Childhood*, 43(232):646-657, 1968.

Sixteen Ss (all related with consanguinity in 6 of 7 parental couples) with neonatal cholestasis had an obstructive type of jaundice from the first week of life. The jaundice lasted from 1 to 6 years and was associated with severe itching, bleeding tendencies, rickets, anemia, and growth retardation. Seven children died in infancy, at least 5 as a result of hemorrhages; however, no death from hemorrhage occurred after vitamin K was used as a regular treatment. Laboratory examinations showed hyperbilirubinemia, increased transaminases and alkaline phosphatases, hyperlipemia, an increase in pre-β- and β-lipoproteins, a slight decrease in albumin, and an increase in α_2-globulin. After the end of the cholestatic period, the children started to regain normal stature, and adult height was normal. From prepuberty, patients tended to develop edema of the legs. Liver histology showed "giant cell hepatitis" which did not progress to fibrosis. Parents showed a slight but significant increase in serum bilirubin; this is possible evidence of heterozygosity. The term "hereditary, recurrent, intrahepatic cholestasis from birth" is proposed for this new inborn error of metabolism. (26 refs.) - *G. Pura.*

University of Oslo
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839 WALSHE, J.M. Toxic reactions to penicillamine in patients with Wilson's disease. *Postgraduate Medical Journal - Supplement*, (October):6-8, 1968.

Many toxic reactions have been reported since 1956 when penicillamine was introduced as a chelating agent to promote the excretion of copper in patients with Wilson's disease. The nephrotic syndrome, a positive LE cell test, thrombocytopenia, purpura, and severe urticaria appear to be immune phenomena following

388-622 O - 70 - 4

development of antibodies to a penicillamine-protein complex. Many patients respond to steroid coverage, antihistamines, or reduction in the dosage of penicillamine. Despite this toxicity, there is no satisfactory alternative treatment, and most patients do tolerate large doses of penicillamine over a long period of time with impressive remission of the hepatic and neurological manifestations of Wilson's disease. (15 refs.) - *E.L. Rowan.*

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Cambridge, England

840 The clinical spectrum of Fanconi's syndrome. (Medical staff conference.) *California Medicine*, 108(3):225-231, 1968.

Fanconi's syndrome is characterized by glucosuria, aminoaciduria, and increased renal clearance secondary to impaired renal tubular reabsorption of glucose, amino acids, and phosphate. The 5 etiological categories are: idiopathic; as a concomitant or integral part of a genetic disease (cystinuria, Wilson's disease, tyrosinemia, Lowe's syndrome, and hereditary fructose intolerance); medullary cystic disease; acquired (abnormality of protein metabolism, drugs, heavy metals, and malignancy); and experimental (animal studies). Patients usually have renal tubular acidosis, which may be corrected by alkali therapy and is distinct from the idiopathic, primary renal tubular acidosis of adults. Marked lysozymuria was observed in patients with hereditary fructose intolerance, suggesting that urinary excretion of lysozyme may reflect tubular damage. A diagnosis of Fanconi's syndrome was made in an 18-year-old boy who showed lysozymuria, proteinuria, nephrocalcinosis, and impaired tubular reabsorption. (4 refs.) - *M.G. Conant.*

Department of Medicine
University of California Medical Center
San Francisco, California 94122

841 LLOYD, JUNE K. Disorders of the serum lipoproteins. I. Lipoprotein deficiency states. *Archives of Disease in Childhood*, 43(230):393-403, 1968.

Two forms of physiological lipoprotein deficiency of the fetus and the newborn exist and both are autosomal recessive. A-β-lipoproteinemia, is characterized by malabsorption, vitamin and mineral deficiencies, progressive retinitis, and atoxic necropathy. In some patients, MR is present from childhood. Serum total cholesterol, phospholipid, and triglyceride levels are low; β-lipoprotein is absent or deficient; acanthocytosis of the red cell is always present; normal rouleaux formation is absent; and sedimentation rate is low. The primary defect may be an incomplete formation of the β-lipoprotein molecule. The primary defect of familial α-lipoprotein deficiency (Tangier disease) may be due to the production of a defective protein. Gross enlargement of the tonsils due to deposition of yellow orange cholesterol esters is the predominant feature of this disorder. Blood serum is turbid, the triglycerides moderately raised, and the cholesterol and phospholipids are decreased. Secondary deficiencies of serum lipoproteins include: failure to form chylomicrons as in cystic fibrosis; reduction of β-lipoprotein due to hepatocellular failure, malabsorptive states, hyperthyroidism, or protein-losing enteropathy; and low levels of α-lipoprotein as in many childhood illnesses and in biliary obstruction. (51 refs.) - *D.S. Plaut.*

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842 CLAUSEN, J., MELCHIOR, J.C., & DYGGVE, H. Chemical studies of disorders in glycolipid metabolism. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 284-295.

Progressive encephalopathies orginating from lysosomal defects can be detected by quantitative thin layer chromatography of lipids from biological fluids and urinary sediments. The polar lipid pattern of patients hospitalized in Denmark was screened in this manner and compared with normal distribution of sialic acid and inositol-free polar lipid. Patients with an abnormal polar lipid pattern were selected for enzymatic screening of lysosomal enzymes in urine. In this manner, a patient with metachromatic leukodystrophy was detected in whom 2 glycolipid fractions predominate and arylsulfatase activity A is absent. Also detected was a patient with Gaucher's disease in whom the glycolipid level was significantly elevated and β-glucosidase activity decreased. (31 refs.) - *M.G. Conant.*

843 PAMPIFLIONE, G., & LEHOVSKY, MILOS. The evolution of EEG features in Tay-Sachs' disease and amaurotic family idiocy in 24 children. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, p. 287-306.

An attempt to define EEG characteristics for Tay-Sachs' disease, amaurotic familial idiocy, and other neurolipidoses was done by using 24 children definitely proven to have neuronal lipidosis disorders. Seven of 8 patients, in whom clinical symptoms began in the first 6-19 months of life, had similar EEG abnormalities as the disease progressed. In all 24 patients, at some stage of the disease, irregular amplitude slow activity became prominent at 1 1/2 - 2 c/sec with a disruption of the normal rhythm of both frontocentral and temporo-occipital areas. In children with amaurotic familial idiocy in whom symptoms began between 2 and 4 1/2 years of age, EEG abnormalities occurred early in the disease in contrast to the Tay-Sachs' patients who had nearly normal EEGs in early stages. In the future, EEG features may be used in differential diagnosis and as screening tests. (23 refs.) - *K. Drossman.*

844 FRACCARO, M., MAGRINI, U., SCAPPATICCI, SUSI, & ZACCHELLO, F. In vitro culture of spleen cells from a case of Gaucher's disease. *Annals of Human Genetics*, 32(Part 2):209-213, 1968.

Spleen cells were cultured from a 5-year-old girl with Gaucher's disease - an hereditary cerebroside lipidosis. The patient was physically underdeveloped, but of normal intelligence. She displayed characteristic Gaucher's cells in bone marrow and spleen, and she had characteristically elevated serum acid phosphatase. Cultured Gaucher's cells had a peculiar morphology as they were spindle-shaped and contained a round PAS-positive (cerebroside) cytoplasmic body. Some cells were devoid of acid phosphatase activity while others had either a granular or diffuse distribution. Since no Gaucher's cells were observed in culture at 35 days, *in vivo* environmental conditions are apparently essential for their formation. This supports the hypothesis of cerebroside accumulation by phagocytic activity. The disarrangement of acid phosphatase distribution suggests a disruption in cytoplasmic organization with a secondary spillage of this enzyme into the general circulation. (17 refs.) - *E.L. Rowan.*

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University of Pavia
Pavia, Italy

845 MENDEL, EVRI B., & McCULLOUGH, JAMES A. Gaucher's disease and pregnancy: Report of a patient during three pregnancies. *Obstetrics and Gynecology*, 32(5):607-609, 1968.

Gaucher's disease is rarely associated with pregnancy; therefore, the investigation of a 29-year-old Jewish female with Gaucher's disease during 3 pregnancies is presented. Hepatosplenomegaly was observed in the S at 7 1/2 years, and Gaucher's cells were revealed at age 13 years; 2 younger brothers were also affected. During the proband's first pregnancy, there was no apparent change in spleen size, and the S delivered a normal full-term female. Postpartum X-rays revealed osteoporesis with thinning of the cortices and flaring of the distal ends of both femurs. The second pregnancy ended with a spontaneous abortion. The third pregnancy resulted in a second normal female. After this pregnancy, the S's spleen increased to 20 cm and she was given 40 mg of prednisone; however, her platelet count dropped to 11,000 and medication was increased to 125 mg for 2 weeks. Treatment with prednisone continued for about 2 months after delivery, at which time the S was released. Uneventful removal of the spleen and 2 accessory spleens approximately 2 weeks later was followed by a period of general good health. Collapse of the left femoral head occurred about 1 year and 8 months later, with symptoms subsiding within 4 months. The study concluded that although pregnant Ss with Gaucher's disease require careful hemotologic observation, the risk of hemorrhage is not increased, the fetus is not affected, and pregnancy does not have adverse effects. (7 refs.) - *V.R. Shaffer.*

3434 Swiss Avenue
Dallas, Texas 75204

846 KENNAWAY, N.G., & WOOLF, L.I. Splenic lipids in Gaucher's disease. *Journal of Lipid Research*, 9(6):755-765, 1968.

Analysis of splenic lipids from 12 patients with Gaucher's disease showed a large accumulation of glucocerbroside. The neural ceramide oligohexoride levels were within normal range as were data on lipids and phospholipids. The glucocerebroside was the predominant lipid in the spleens of Gaucher patients, often reaching concentrations up to 200 times those found in normal spleens. There was no evidence of galactocerebroside. These results are consistent with other data on this disease. Concentrations of ceramide dihexoside in 3 patients appeared only slightly higher than those found in 2 normal patients. In 9 additional cases, glucose was the major sugar found in the splenic lipids. (50 refs.) - *B. Bradley.*

Department of Pediatrics
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847 OCKERMAN, P.A., & KOHLIN, P. Tissue acid hydrolase activities in Gaucher's disease. *Scandinavian Journal of Clinical and Laboratory Investigation*, 22(1):62-64, 1968.

Seven acid hydrolases were measured in postmortem specimens from liver, spleen, and brain and in liver biopsy specimens from patients with Gaucher's disease. Measurements were also made on postmortem and biopsy control specimens. The activity of 4-methylumbelliferyl-β-glucosidase was decreased in liver (biopsy and postmortem) and spleen, and splenic acid phosphatase, β-acetylglucosaminidase, β-glucuronidase, and α-fucosidase were increased. Increased hepatic β-acetylglusosaminidase, α-fucosidase, and acid phosphatase, and cerebral α-fucosidase were observed. No differences were noted in activities of β-galactosidase and α-mannosidase. The similarity of postmortem and biopsy results supports their validity. (6 refs.) - *M.G. Conant.*

Klinisk-kemiska centrallaboratoriet
Lasarettet
Lund, Sweden

848 BLATTNER, RUSSELL J.. Gaucher's disease: Abnormalities in immunoglobulins. *Journal of Pediatrics*, 73(4):626-628, 1968.

Non specific immunoglobulin (Ig) and homogeneous IgA increases are reported in patients with the chronic type of Gaucher's disease. Possible antigenicity to galactocerebroside, a minor component of the lipid stored in the reticuloendothelial system, may be related to the hepatosplenomegaly, aseptic necrosis of bone, and chronic infections characteristic of this inborn error of metabolism. (9 refs.) - *E.L. Rowan.*

No address

849 PAMPIGLIONE, G. Some inborn metabolic disorders affecting cerebral electrogenesis. In: Holt, K.S., & Coffey, V.P., eds. ***Some Recent Advances in Inborn Errors of Metabolism.*** London, England, E. & S. Livingstone, 1968, Chapter 5, p. 80-100.

Characteristic EEG patterns of patients with infantile spasms, phenylketonuria (PKU), and sphingolipidoses (including metachromatic leukodystrophy (MLD), Krabbe's disease, Tay-Sachs' disease, and other neuronal lipidoses) were examined. Hypsarrhythmia was observed in 350 children presenting with infantile spasms; however, in nearly 75% of these children, no etiopathogenetic classification could be made. In the remaining 25% (diagnosed as cases of PKU, altered tryptophan metabolism, tuberous sclerosis, and Down's syndrome), EEG features evolved differently in each group. In PKU, the relatively minor EEG abnormalities present in the first weeks of life became more severe later in life if dietary treatment was not instituted. EEG features in 20 cases of MLD were very similar, with normal patterns preserved in the early stages although clinical deterioration was evident. Patients with Krabbe's disease showed irregular slow components, sharp waves, and occasional spikes. In Tay-Sachs' disease, EEG abnormalities may be absent in the first months of life. In other neuronal lipidoses, abnormal EEG features appeared rapidly after the occurrence of motor or sensory symptoms or seizures. (40 refs.) - ***M.G. Conant.***

850 BLACK, J.A. Monosaccharide intolerance. In: Holt, K.S., & Coffey, V.P., eds. ***Some Recent Advances in Inborn Errors of Metabolism.*** London, England, E. & S. Livingstone, 1968, Chapter 7, p. 116-128.

Intolerance of monosaccharides may be due to defective intestinal absorption, with diarrhea as the chief symptom, or to defective metabolic incorporation, with hypoglycemia and liver damage as the symptoms. Galactosemia and fructose intolerance are caused by defective metabolism with widespread deficiency of galactose-1-phosphate uridyl transferase in the former, and limited deficiency of frustose-1-phosphate aldolase in the latter. Galactosemia involves cerebral damage, probably caused by accumulated galactose-1-phosphate, hypoglycemia, and hepatocellular damage. In fructose intolerance, damage is largely confined to the liver, and the results of dietary treatment are excellent. (21 refs.) - ***M.G. Conant.***

851 HIEJIMA, KAZUMASA, TSUCHIYA, SHIGERU, SAKAMOTO, YASUKI, & SHIINA, SHIN-ICHI. Two cases of Marfan's syndrome associated respectively with subacute bacterial endocarditis and the Wolff-Parkinson-White syndrome. ***Japanese Heart Journal,*** 9(2):208-218, 1968.

Two cases of Marfan's syndrome, 1 associated with subacute bacterial endocarditis and the other with Wolff-Parkinson-White syndrome (WPW) are described. The diagnosis of Marfan's syndrome was made on the basis of arachonodactyly and cardiovascular abnormalities in the first S and these abnormalities plus ectopia lentis in the second S. Although a few cases of subacute bacterial endocarditis have been reported, this is the first report of WPW with Marfan's syndrome, and it would appear that this association is probably coincidental. (5 refs.) - ***K. Drossman.***

School of Medicine
Tokyo Medical and Dental University
Tokyo, Japan

852 GROSSMAN, MARVIN, KNOTT, A. PAUL, JR., & JACOBY, WILLIAM J., JR. Calcified annulus fibrosus with mitral insufficiency in the Marfan syndrome. ***Archives of Internal Medicine,*** 121(6): 561-563, 1968.

A patient with Marfan's syndrome was found to have a massive calcification of the mitral annulus and mitral insufficiency. The patient was examined by X-ray, ECG, cineangiography, and heart catheterization, and the findings included the mitral annulus calcification, an ectopic atrial rhythm, some premature contractions of the atria, left ventricular hypertrophy, and mitral regurgitation. It is possible that the calcification occurred as a part of the syndrome, because there was no history of inflammation. (16 refs.) - ***M.T. Lender.***

Medical Service
United States Naval Hospital
Philadelphia, Pennslyvania 19145

853 FEINGOLD, MURRAY. The "thumb sign" in children. ***Clinical Pediatrics,*** 7(7):423-424, 1968.

The "thumb sign" found in children with Marfan's syndrome is discussed; the thumb sign involves the protrusion of the thumb beyond the closed fist. The Ss (746) investigated included: 562 pediatric patients (CA 2-15 yrs); 58 institutionalized Ss with Down's syndrome; and 126 institutionalized and nonspastic patients whose motor retardation was considered nonspecific. The 2 latter groups were evaluated to determine the frequency of the thumb sign in Ss with hypotonia. In the pediatric group, 1.1% of the Caucasians and 2.7% of the Negroes demonstrated the thumb sign but not Marfan's syndrome. This sign was not observed in any of the 137 Ss between the ages of 2-6 years. The thumb sign is almost always present in children with Marfan's syndrome; however, it appears to have limited value as a diagnostic tool. It may be beneficial in the differential diagnosis of homocystinuria and Marfan's syndrome. The thumb sign was absent in all Ss with Down's syndrome, and was present in only 2 of the nonspecific retardation Ss. (3 refs.) - ***B. Bradley.***

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854 FELITTI, VINCENT J., & McAFEE, LAURICE L. Recovery from symptoms in pseudohypoparathyroidism: A case study. ***Johns Hopkins Medical Journal,*** 123(6):271-275, 1968.

The syndrome of pseudohypoparathyroidism was diagnosed in a 52-year-old man with a 20 year history of uncontrolled grand mal seizures, severely impaired gait, multiple fractures, failing vision, and intellectual

deterioration of late onset. Laboratory data included high serum phosphorus, low serum calcium, low urinary excretion of calcium, severe decalcification of bone, and a grossly abnormal EEG (bursts of Δ activity). The patient failed to respond to large doses of high potency parathyroid hormone (thus ruling out hypoparathyroidism), but did respond to a high calcium diet plus dihydrotachysterol (vitamin D). Laboratory values became normal and remained so during 2 1/2 years of treatment. EEG approached normal, seizures ceased, gait improved, and there was a marked increase in measured intelligence (documented for the first time). Bone X-rays failed to show improvement. This syndrome of end organ unresponsiveness to parathormone is a rare entity of undetermined etiology (possibly congenital), and it is frequently misdiagnosed. (13 refs.) - *E.L. Rowan.*

Permanente Medical Group
8010 Parkway Drive
La Mesa, California 92041

855 MONEY, JOHN, & EHRHARDT, ANKE A. Correlation of mental functioning and calcium regulation in a rare case of pseudohypoparathyroidism. *Johns Hopkins Medical Journal*, 123(6):276-282, 1968.

A 52-year-old man with pseudohypoparathyroidism showed marked improvement in memory and intellect as his calcium level was regulated with vitamin D. Psychological testing before treatment and 3 months and 2 years after treatment showed improved neurocognitive function which paralleled a change in electrophysiologic brain function (decrease in Δ activity on EEG). Improved motor coordination and memory were the most significant findings. Attention and immediate recall improved markedly, but numerical and calculation skills apparently suffered from lack of interest and incentive on the part of the patient. Mental deterioration as a result of calcium imbalance of maturity onset appears to be reversible in contrast with the irreversible mental deficiency following prenatal derangement. (3 refs.) - *E.L. Rowan.*

Department of Psychiatry and Behavioral Sciences
The Johns Hopkins University School of Medicine
601 North Broadway
Baltimore, Maryland 21205

856 HERTZOG, KEITH P. Brachydactyly and pseudo-pseudohypoparathyroidism. *Acta Geneticae Medicae et Gemellologiae*, 17(3):428-437, 1968.

Shortened fifth middle phalanges (less than 1/2 the length of the fourth middle phalanx) were found in 12 of 96 Philadelphia Chinese and in none of 200 Philadelphia Negro children. Nine of the 12 Ss had stunted cratered diaphyses with precocious cone epiphyses which underwent very early epiphyseal union. A differential vascular supply is thought to cause cone epiphyses and may be involved in the short diaphyses associated with cone epiphyses in these cases. The classification of metacarpal brachydactyly is proposed. Pseudo-pseudohypoparathyroidism is characterized by shortened metacarpals, short stature, slight MR, and ectopic calcifications, and it is thought to be the incomplete manifestation of Albright's hereditary osteodystrophy.(47 refs.) - *M.G. Conant.*

Fels Institute
Yellow Springs, Ohio 45387

857 WATSON, L. Hypo-hyperparathyroidism. *Proceedings of the Royal Society of Medicine*, 61(3):287-288, 1968.

A girl with limited movement of the hip-joints and tetany was discovered to have hyperparathyroidism with hypoparathyroid chemical findings. Treatment with vitamin D has resulted in normal growth. The syndrome has now been recognized in 3 other individuals and should be considered in tall patients with idiopathic hypoparathyroidism. (1 ref.) - *E.L. Rowan.*

University College Hospital
Medical School
London, England

858 O'MALLEY, BERT W., & KOHLER, PETER O. Hypoparathyroidism (First of three parts). *Postgraduate Medicine*, 44(4):71-75, 1968.

Tabulation of the presenting signs and symptoms of 172 Ss with postoperative hypoparathyroidism shows that the most frequent findings were cramps, paresthesias, and tetany. Convulsions, laryngeal stridor, and a variety of nonspecific gastrointestinal complaints occurred less frequently. Chvostek's sign was absent in 45%, and Trousseau's sign was absent in 38%. In some Ss who were evaluated originally for psychiatric problems, mental changes were present without the associated tetany. Cataracts occurred in 23%. Periodic serum calcium determinations should be made to diagnose postoperative hypoparathyroidism. Idiopathic hypoparathyroidism represents true parathormone deficiency; the parathyroid glands are usually absent. There is a definite familial incidence, and evidence shows it is a sex-linked recessive phenotype. The Ellsworth-Howard test can be used in the differential diagnosis of idiopathic variety from pseudohypoparathyroidism. Ss with pseudohypoparathyroidism have distinctive somatic characteristics, soft tissue calcifications, and calcification of the basal ganglia. (No refs.) - *L.E. Clark.*

Duke University Medical Center
Durham, North Carolina 27706

859 CROSS, HAROLD E., HOLLANDER, CHARLES S., RIMOIN, DAVID L., & McKUSICK, VICTOR A. Familial agoitrous cretinism accompanied by muscular hypertrophy. *Pediatrics*, 41(2):413-420, 1968.

Technetium-99M scanning revealed functioning thyroid tissue in 2 female sibs, who were previously diagnosed as athyreotic cretins on the basis of radioiodine studies. The patients were retarded mentally and physically. Increased levels of lactic dehydrogenase, serum glutamic

oxaloacetic transaminase and cholesterol were found in both girls, and increased creatine phosphokinase was found in one. Protein bound iodine, thyroxine, and iodine uptake were decreased. Electrocardiograms revealed heart anomalies, and X-rays showed some skeletal abnormalities. Marked hypertrophy of the muscles was noted in both patients. Treatment with levothyroxine at 0.3 mg/day caused a marked increase in activity, growth, and mental development in both girls. The association of hypothyroidism with muscular hypertrophy is poorly understood in light of the normal histological findings. (23 refs.) - *E. Gaer.*

Moore Clinic
Johns Hopkins Hospital
Baltimore, Maryland 21205

860 MIETTINEN, TATU A. Mechanism of serum cholesterol reduction by thyroid hormones in hypothyroidism. *Journal of Laboratory and Clinical Medicine*, 71(4):537-547, 1968.

Three myxedematous patients were given tritiated cholesterol and, 3 weeks later, thyroid hormone therapy; the rate of cholesterol catabolism was determined by measuring fecal bile acids and cholesterol. When thyroid therapy began, the level of serum cholesterol fell, and simultaneously, the fecal excretion of neutral steroids derived from cholesterol increased. There was a less constant increase in the output of bile acid and unabsorbed dietary cholesterol. Later in the observation period, the serum cholesterol level stabilized at a low level. This fact, together with the unchanged slope of the specific activity-time curve for tritiated cholesterol, suggested that either cholesterol synthesis was depressed or cholesterol with a high specific activity was mobilized from the tissues. (36 refs.) - *M.G. Conant.*

Third Department of Medicine
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Helsinki, Finland

861 HASSAN, ABDELHADI I., AREF, GALAL H., & KASSEM, A. SAMIR. Congenital iodide-induced goitre with hypothyroidism. *Archives of Disease in Childhood*, 43(232):702-704, 1968.

Three infants with congenital iodide-induced goiter and hypothyroidism, born to mothers on iodide medication, are reported. Hypothyroidism was diagnosed from the clinical picture (pallor, puffy face, and enlarged protruding tongue), from the retarded bone development (absence of epiphysial centers), and from blood chemistry in one case (protein bound iodine of 12.8 μg/100 ml). The mothers were authyroid, but had received large doses of iodide orally for years. Treatment of the infants with desiccated thyroid led to disappearance of the cretinoid manifestations and shrinking of the goiter. Subsequent growth and development were normal. (27 refs.) - *M.G. Conant.*

Department of Pediatrics
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862 FRANKEL, JACOB J., & LARON, ZVI. Psychological aspects of pituitary insufficiency in children and adolescents with special reference to growth hormone. *Israel Journal of Medical Science*, 4(5):953-961, 1968.

Neuropsychological testing of 39 Ss (CA 1 to 20 yrs) with deficiencies in one or more pituitary hormones indicated a definite decrease in intellectual capacity. Of 35 patients, only 6 were classified as average or above, while 18 were considered borderline or below in intelligence. The IQs of siblings were substantially higher than the patients'; however, they were also below normal. Visuomotor functioning was deficient in the group as a whole, and most of the patients presented distortions of design on recall. Since the results were uniform throughout the group, the question of possible organic brain damage, especially from neonatal hypoglycemia secondary to endocrine disorders, needs further investigation. (22 refs.) - *M. Drossman.*

Department of Pediatrics
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Petah Tikva and Tel Aviv University Medical School
Israel

863 FRENCH, J.H., GRAZIANI, L.J., & SCHEINBERG, L.C. Treatment of metabolic and endocrine causes. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 7, p. 111-176.

In order to provide maximally effective treatment, endocrine and metabolic disorders should be recognized early. Current treatment methods include: elimination of the offending substance from the diet; use of an agentt to counteract the deficient metabolic functioning; replacement of the deficient substance; and symptomatic treatment. The common features, differential diagnosis, and recommended treatment are listed for 50 endocrine and metabolic disorders. (102 refs.) - *J.M. Gardner.*

864 BALAZS, R., KOVACS, S., TEICHGRABER, P., COCKS, W.A., & EAYRS, J.T. Biochemical effects of thyroid deficiency on the developing brain. *Journal of Neurochemistry*, 15(11):1335-1349, 1968.

Brains of neonatally thyroidectomized rats showed quantitative changes when compared to those of normal rats during the first 7 weeks of life. At 35 days, the weights of the cerebral hemispheres and cerebellum were reduced by 20%, and although the total deoxyribonucleic acid (DNA) content/organ was constant, the protein/DNA and ribonucleic acid (RNA)/DNA ratios decreased significantly. This indicates that thyroid deficiency affects cell size, not number, in brain and cerebellum. The liver in experimental rats contained only 25% of the cells found in controls, and small decreases in hepatic protein and RNA content were observed. The activities of lactose dehydrogenase, glutamate dehydrogenase, and glutamate decarboxylase, based on DNA content, were reduced. Pyrimidine metabolism by brain and liver was unaffected by thyroid deficiency. (52 refs.) - *M.G. Conant.*

Neuropsychiatric Research Unit
Carshalton, Surrey, England

865 LARON, ZVI, PERTZELAN, ATHALIA, & KARP, MOSHE. Pituitary dwarfism with high serum levels of growth hormone. *Israel Journal of Medical Sciences*, 4(4):883-894, 1968.

Twenty-two patients (13 female; 9 male) from 14 families of Oriental Jewish origin showed the clinical signs and symptoms of isolated pituitary growth hormone (HGH) deficiency (dwarfism, acromicria, obesity, a tendency to hypoglycemia, a high-pitched voice, normal to slightly retarded mental development, and a normal puberty) but abnormally high levels of immunoreactive serum HGH. Exogenous HGH administration provoked a metabolic response, and blood sugar rose after administration of glucose and glucagon or epinephrine; therefore, this syndrome is not due to an end-organ nonresponsiveness. Prolonged treatment with HGH in 3 patients produced increased growth, a decreased tendency to spontaneous hypoglycemia, and a reduction in skinfold thickness. It is suggested that this syndrome is due to an inborn error of HGH synthesis which results in an immunologically reactive but biologically inactive molecule. (27 refs.) - *M.G Conant.*

Pediatric Metabolic and Endocrine Service
Beilinson Medical Center
Petah Tikva, Israel

866 PERTZELAN, ATHALIA, ADAM, AVINOAM, & LARON, ZVI. Genetic aspects of pituitary dwarfism due to absence or biological inactivity of growth hormone. *Israel Journal of Medical Sciences*, 4(4):895-900, 1968.

Radioimmunoassay of serum human growth hormone (HGH) was made in 31 Israeli children with pituitary dwarfism. Measurements of HGH on fasting and after insulin-induced hypoglycemia revealed 2 distinct genetic varieties—one caused by an excess of biologically inactive HGH and the other by a deficiency of HGH. Both forms of pituitary dwarfism have the same clinical appearance, and both are autosomal recessive. Dwarfism due to high HGH levels was found only in Oriental Jews, while low-HGH-level dwarfism was found in both Oriental and Ashkenazi Jews. Patients with clinical symptoms suggestive of pituitary dwarfism who have normal HGH levels may constitute a third variety. (16 refs.) - *M.G. Conant.*

Pediatric Metabolic and Endocrine Service
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Petah Tikva, Israel

867 AMUSO, SAMUEL JOSEPH. Diastrophic dwarfism. *Journal of Bone and Joint Surgery*, 50-A(1):113-122, 1968.

Two Ss (one mildly MR, the other with normal intellect) with diastrophic dwarfism exhibited micromelic dwarfism, scoliosis, club feet, ear deformities, cleft palate, contracted interphalangeal joints, and hypermobile thumbs. Characteristic roentogenographic features include broad metaphyses, shortened long bones, maldeveloped first metacarpal, and irregular ossification of the hand bones. The multiple deformities are severe and often resistant to correction and reconstruction. Laboratory tests, including chromosomal analysis and urinary acid mucopolysaccharide assay, revealed no abnormalities. The disorder is probably transmitted as an autosomal recessive and presents as defective chondrogenesis. (20 refs.) - *M.G. Conant.*

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868 DEY, JUDITH. Familial mental retardation associated with low birth weight dwarfism. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Retardation*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 390-396.

A family with many MR members has 3 male members who are low birth-weight dwarfs and are also MR. They all have low-set ears, an inverted pear-shaped skull, a triangular-shaped face, micrognathism, and severe to moderate MR. The 2 youngest boys (CA 5 1/2 and 4 yrs) showed severe failure to thrive during their first 2 years. Between 2 and 3 years of age, their appetites improved, and they gained weight and showed some developmental progress. The MR of their cousins was not related to low birth-weight dwarfism and the degree of retardation in the affected members seemed to increase in succeeding generations. (1 ref.) - *M.G. Conant.*

869 BAKER, J.R. Gargoylism: Biochemical aspects. In: Holt, K.S., & Coffey, V.P., eds. *Some Recent Advances in Inborn Errors of Metabolism.* London, England, E. & S. Livingstone, 1968, Chapter 10, p. 143-148.

Gargoylism includes the group of hereditary mucopolysaccharidoses (Hurler, Hunter, Sanfilippo, and Scheie syndromes) characterized by excessive urinary excretion of dermatin sulfate and/or heparin sulfate. The enzymatic defect in this condition is still unknown. Dermatin sulfate and heparin sulfate are precipitated by cationic detergents, but they are detected more simply by paper spot tests, such as the toluidine blue test and the Alcian blue test, or by thin layer chromatography. Quantitative methods for determining urinary acid glycosaminoglycans are generally unsatisfactory; however, they can be determined via the uronic acid content following Sephadex gel filtration. (20 refs.) - *M.G. Conant.*

870 COFFEY, VICTORIA P. Gargoylism: Clinical aspects. In: Holt, K.S., & Coffey, V.P., eds. *Some Recent Advances in Inborn Errors of Metabolism.* London, England, E. & S. Livingstone, 1968, Chapter 11, p. 149-154.

Hurler's syndrome or gargoylism is not apparent at birth; however, macroglossia and failure to thrive occur in the first few weeks of life. Clinical findings include: retarded growth; Reilly bodies in lymphocytes; characteristic face; cardiac, hand, and skeletal abnormalities; MR; eye opacities; and enlargement of

viscera. Hurler's disease can be diagnosed biochemically by the toluidine blue or Alcian blue test, hematologically by the presence of Reilly bodies, and by tissue biopsy, or by the skin inflammatory test. Differential diagnosis from cretinism and pseudohypothyroidism is made by PBI levels, skeletal X-rays, corneal cloudiness, and enlargement of viscera. The chief difference between Hurler's syndrome and other mucopolysaccharidoses is that in Hurler's syndrome, the urinary mucopolysaccharides contain 80% dermatin sulfate and 20% heparin sulfate. (7 refs.) - *M.G. Conant.*

871 ZECHNER, GERD, & ALTMANN, FRANZ. The temporal bone in Hunter's syndrome (gargoylism). *Archiv fur Klinische und Experimentelle Ohren-Nasen-und Kehlkopfheilkunde*, 198(2):137-144, 1968.

Histological, histochemical, and skeletal changes in the temporal bones of a boy (CA 10 1/2 yrs) with gargoylism consisted of changes in the cells and ground substance, deposition of mucopolysaccharides in the periosteum, and destructive growth of perivascular connective tissue. Otosclerotic foci and numerous blue mantles never seen at this age were observed in the middle ear. Whether the foci were coincidentally or causally related to the generalized metabolic disorder is under investigation. (8 refs.) - *W. Asher.*

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872 MATALON, REUBEN, CIFONELLI, J. ANTHONY, ZELLWEGER, HANS, & DORFMAN, ALBERT. Lipid abnormalities in a variant of the Hurler syndrome. *National Academy of Science Proceedings*, 59(4):1097-1102, 1968.

Fibroblasts from a patient with clinical evidence of Hurler's syndrome contained abnormally high concentrations of lipids and sialic acid as compared with those from a normal child and from a patient with typical Hurler's disease. Metachromatic granules were observed in the fibroblast upon treatment with chloroform:methanol (2:1, vol:vol) and also in his parents' cells. The lipid fraction, containing gangliosides and phospholipids, was isolated and separated by thin-layer and paper chromatography and showed a marked increase of gangliosides migrating in the region of GM_1 and GD_1. Enhanced incorporation of acetate-C^{14} was also observed. This cell abnormality can be explained if the father is a double heterozygote and the proband is homozygous for Hurler's disease and heterozygous for a lipid disturbance. (45 refs.) - *M.G. Conant.*

Department of Pediatrics and Biochemistry
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Chicago, Illinois 60637

873 CROCKER, ALLEN C. Therapeutic trials in the inborn errors: An attempt to modify Hurler's syndrome. *Pediatrics*, 42(6):887-888, 1968. (Commentary)

The dietary restriction of ascorbic acid in a patient with Hurler's syndrome met the criteria for a useful therapeutic trial in that the diagnosis was established early in infancy, the agent modified mucopolysaccharide deficit in cell culture, the therapy program was safe over a 12-month trial, and quantification of progress was possible. Although the treatment regime did not significantly alter the course of the syndrome, it can serve as a model for future therapeutic trials in metabolic errors. (3 refs.) - *E.L. Rowan.*

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874 FRATANTONI, JOSEPH C., HALL, CLARA W., & NEUFELD, ELIZABETH F. Hurler and Hunter syndromes: Mutual correction of the defect in cultured fibroblasts. *Science*, 162(3853):570-572, 1968.

The biochemical defect of cultured skin fibroblasts from Hurler or Hunter patients (faulty degradation of sulfated mucopolysaccharide, resulting in excessive intracellular accumulation) may be corrected if cells of these 2 genotypes are mixed with each other or with normal cells. The effect is mediated by substances released into the medium. (8 refs.) - *Journal abstract.*

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875 LOEB, H., JONNIAUX, G., RESIBOIS, A., CREMER, N., DODION, J., TONDEUR, M., GREGOIRE, P.E., RICHARD, J., & CIETERS, P. Biochemical and ultrastructural studies in Hurler's syndrome. *Journal of Pediatrics*, 73(6):860-874, 1968.

Two children with the clinical, radiological, and biological symptoms of Hurler's syndrome had hepatic and cerebral biopsies made. Chromatographic fractions of urinary mucopolysaccharides showed high levels of heparitin sulfate and chondroitin sulfate B. The urinary excretion of uronic acid was high; in patient 1, it was 49.7 mg/liter and 20.4 mg/liter in patient 2. The brain gangliosides in patients 1 and 2 were 0.75% and 0.93% of dry weight (normal percentages 0.45% to 0.59%) for the white matter 2% and 1.28% of dry weight (normal values 1.8% to 2.0%) for the gray matter. Thin-layer chromatography disclosed that in the gray matter, the proportions of the different fractions of gangliosides are changed, namely an increase of gangliosides GM2 and GM3, while the total quantity of gangliosides is increased in the white matter only. The neurons contain abundant inclusions which are limited by a unit membrane, and have the morphology of zebra bodies. The cytoplasm of the perithelial cells is distended by large, clear inclusions, similar to inclusions in the liver. The astrocyte inclusions are sometimes lamellar, but more commonly, they are clear and finely granular. The lipids arrange themselves in parallel leaflets when they are suspended in a sufficient concentration in an aqueous medium. This could explain the morphology of the unit membrane and the lipid inclusions filling the cells in lipidosis and in Hurler's disease. (62 refs.) - *F.J. McNulty.*

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876 KOMROWER, GEORGE M., FOWLER, BRIAN, GRIFFITHS, MICHAEL J., & LAMBERT, ANN M. A prospective community survey for aminoacidaemias. *Proceedings of the Royal Society of Medicine*, 61(3):294-296, 1968.

Blood specimens collected by health visitors and subjected to one-way chromatography proved to be an administratively feasible and technically reliable method of mass screening for aminoacidemias.Among 6,901 infants tested (96.8% of the available population), the examiners found many transient elevations in plasma amines (59 tyrosinemia, 15 methionemia, 22 phenylalaninemia), one case each of histidinemia and prolinemia, and 3 cases of phenylketonuria. (7 refs.) - *E.L. Rowan.*

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Pendlebury, Manchester, England

877 KOMROWER, GEORGE M. A prospective community survey for aminoacidemias. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 808-811.

Heel prick blood samples at 2-3 weeks of age were obtained from 96.8% of the total available births (7,134) in the community. The specimens were collected by health visitors and analyzed by paper chromatography for aminoacidemias. One case of histidinemia, one of prolinemia, 59 of transient tyrosinemia (which returned to normal in 58 cases within 6 wks), 15 of transient methioninemia, and 22 of transient hyperphenylalaninemia were found. This technique can be carried out satisfactorily with the assistance of local health authorities using an experienced team for interpretation. Repeat examinations, for administrative or technical reasons, were required in 9% of the cases. (10 refs.) - *M.G. Conant.*

878 O'BRIEN, D. The detection and management of the rarer treatable inborn errors of metabolism. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 801-803.

There are 2 approaches to the identification and treatment of inborn errors of metabolism—either screening tests can be applied routinely in the newborn period or the diagnoses can be carefully considered in the relevant clinical circumstances. At the present time, the position is that, with the exception of screening tests for PKU, tests for galactosemia, homocystinuria, and other inborn errors of metabolism should be done only at investigational centers; they should also be used with children who have severe emotional or psychotic illnesses or severe unexplained illness during infancy. Treatable inborn errors of metabolism fall into 3 categories: those requiring dietary modification; those profiting by a synthetic diet; and those requiring some form of pharmacological manipulation. (No refs.) - *M. G. Conant.*

879 JENKE, ALBERT, DEXTER, ROBERT, MASTERSON, VANCE, SHAW, KENNETH N.F., & DONNELL, G.N. Chromatographic screening of urine for detection of inborn errors of metabolism. *California Mental Health Research Digest*, 7(3):130-132, 1969.

Urine samples from 518 MR patients were screened chromatographically for evidence of amino acid metabolic disorders. Of the 33 patients with abnormal findings, 22 were confirmed as previously diagnosed phenylketonurics. One mongoloid patient had cystinuria, and generalized aminoaciduria was noted in one patient with Lowe's syndrome, one with Duchenne-type muscular dystrophy, 3 with acrocephalosyndactyly (possibly a new finding), and 5 with severe growth failure. None of the more recently described aminoacidurias or new specific disturbances in known syndromes were discovered. Mass screening for amino acid metabolic errors is probably not justified in large institutions for the MR. (No refs.) - *E.L. Rowan.*

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880 GUTHRIE, ROBERT. Screening for "inborn errors of metabolism" in the newborn infant—A multiple test program. In: National Foundation-March of Dimes. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, p. 92-98.

Blood specimens collected for routine PKU testing may be used to conduct a large battery of tests for inborn errors of metabolism in neonates. At least 8 tests based on bacterial inhibition assays, bacterial metabolite inhibition assays, and multiple bacterial tests of amino acids and other metabolites will be utilized in a 3-year screening program of 50,000 newborn infants. During this period, reliable criteria for positive screening tests and laboratory confirmatory procedures will be developed. Inborn errors of metabolism characterized by elevated blood amino acids or galactose include;PKU; maple syrup urine disease; galactosemia; galactokinase deficiency; valinemia; tyrosinemia—types A and B; homocystinuria; citrullinemia; ornithinemia; congenital lysine intolerance; methioninemia; prolinemia—types I and II; histidinemia; and Oast-house urine disease. In the future, dried blood specimens may be used in assay procedures, and this will allow the measurement of enzymatic activity and the detection of proteins and their variants. (33 refs.) - *J.K. Wyatt.*

881 BEUTLER, ERNEST. Test for glucose-6-phosphate dehydrogenase deficiency. *Journal of Pediatrics*, 73(2):297, 1968. (Letter)

The TPNH fluorescent spot test is recommended for mass screening of newborns to detect glucose-6-phosphate dehydrogenase deficiency because it is reliable, simple, inexpensive, and easily automated.

The samples can be frozen and stored for several months. The test is available commercially and samples, which are taken on filter paper, are mailable. (5 refs.) - *J. P. West.*

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882 HOLT, K.S., & COFFEY, V.P., eds. ***Some Recent Advances in Inborn Errors of Metabolism.*** London, England, E. & S. Livingstone, 1968, 167 p. Price unknown.

The 12 papers presented by the 14 participants in the Fourth Symposium of the Society for the Study of Inborn Errors of Metabolism held in Dublin, July 1966, are presented. Pathognomonic EEG abnormalities are not associated with specific inborn errors of metabolism, with the possible exception of the Lowe syndrome. Unconjugated pteridines are important in the hydroxylation of phenylalanine which is present in excess in phenylketonuria (PKU). PKU can be detected by screening methods and, if untreated, can produce brain damage. The brain damage can be prevented in both neonate and fetus by prompt institution of a phenylalanine-restricted diet for the child or pregnant woman. Dietary therapy is also valuable in the treatment of maple syrup urine disease and disaccharide and monosaccharide intolerances. The clinical and biochemical aspects of various enzyme deficiency diseases including gargoylism, homocystinuria, and galactokinase deficiency are discussed. This book should be useful reading for the biochemist and the pediatrician. (298 refs.) - *M.G. Conant.*

CONTENTS: The Role of Pteridines in Metabolic Disorders; Maternal Phenylketonuria and Fetal Brain Damage; Inborn Errors of Metabolism Associated with Brain Damage—Early Detection and Prevention of Their Manifestations; EEG Findings in Patients with Phenylketonuria and Some Other Inborn Errors; Some Inborn Metabolic Disorders Affecting Cerebral Electrogenesis; Disaccharide Intolerances; Monosaccharide Intolerances; Galactokinase Deficiency—A New Inborn Error of Metabolism; Histochemistry of the Intrinsic Nerves of the Rectum and Colon; Gargoylism: Biochemical Aspects; Gargoylism: Clinical Aspects; Muscular Dystrophy and Aminoaciduria.

883 JACOBSON, W. The role of pteridines in metabolic disorders. In: Holt, K.S., & Coffey, V.P., eds. ***Some Recent Advances in Inborn Errors of Metabolism.*** London, England, E. & S. Livingstone, 1968, Chapter 1, p. 1-13.

Of the conjugated pteridines, folic acid (biochemically inactive) and folinic acid (biochemically active) are well known. Folinic acid operates as a cofactor in the *de novo* synthesis of the purine ring and in the interconversion of histidine and glutamic acid, glycine and serine, and homocysteine and methionine, and it plays a vital role in mitosis. Folic acid antagonists are used in the treatment of acute leukemia of children, and they can cause lesions in mucous membranes. Unconjugated pteridines operate as cofactors in the hydroxylation of phenylalanine to tyrosine, of tyrosine to 3,4-dihydroxyphenylalanine, and of tryptophan to 5-hydroxytryptophan. Tetrahydrobiopterin is the naturally occurring cofactor in the first 2 enzymatic hydroxylations. (21 refs.) - *M.G. Conant.*

884 COOKE, ROBERT E. Infantile hypercalcemia and vitamin D. ***Hospital Practice,*** 3(11):87-89, 92, 97, 1968.

Infantile hypercalcemia occurs in a wide spectrum of forms, from the severe type characterized by the typical elfin facies, MR, and cardiovascular anomalies, to the mild form, characterized by more subtle symptoms such as failure to thrive, irritability, and hypotonia. Therapy in the mild form consists of restriction of calcium intake, temporary elimination of vitamin D from the diet, and the avoidance of sunlight. The same treatment including surgery to correct cardiovascular defects is used in the severe form. Infantile hypercalcemia may result from transient hypersensitivity of the mother to vitamin D, and the severe form probably originates *in utero*. The less severe form may orginate *in utero* or may possibly be due to postnatal sensitization. The simplest preventative step for limiting or eliminating infantile hypercalcemia would be to ensure that no pregnant woman receives more than the recommended amounts of dietary calcium or vitamin D. (No refs.) - *M.G. Conant.*

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885 GELLIS, SYDNEY S., & FEINGOLD, MURRAY. Picture of the month: Infantile hypercalcemia with mental retardation. ***American Journal of Diseases of Children,*** 115(4):471-472, 1968.

Photographic illustrations are presented for infantile hypercalcemia with MR or supravalvular aortic stenosis. Characteristics include elfin-like facies, hypertelorism, epicanthal folds, strabismus, prominent pointed ears, small teeth and mandible, and a pointed chin. Mild to moderate retardation is usually present. (4 refs.) - *J. Snodgrass.*

20 Ash Street
Boston, Massachusetts 02111

886 GUAY, J. MICHEL, DORION, MARC, & ROY, MICHEL. Stenose aortique supravalvulaire, retard mental et facies particulier (Supravalvular aortic stenosis, mental retardation, and a characteristic facies). ***Union Medicale du Canada,*** 97(12):1811-1816, 1968.

The clinical history of a 30-month-old male child affected with supravalvular aortic stenosis, MR, and characteristic facies, showed that this syndrome was associated with the anomalous response of the fetus to vitamin D due to a defect in vitamin D metabolism or to a fetal hypersensitivity to vitamin D. During her pregnancy, the patient's mother had absorbed vitamin D supplement that was within normal limits and large

doses of calcium. There appears to be no defect in the amino acids metabolism in the patient. (21 refs.) - *G. Pura.*

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887 McCANDLESS, DAVID W., & *SCHENKER, STEVEN. Encephalopathy of thiamine deficiency: Studies of intracerebral mechanisms. *Journal of Clinical Investigation*, 47(10):2268-2280, 1968.

Pyruvate decarboxylase and transketolase activity, lactate, adenosine triphosphate (ATP), and reduced glutathione (GSH) levels in the cerebral cortex, cerebellum, and brainstem of rats with diet-induced thiamine deficiency encephalopathy and pair-fed rats and normally fed asymptomatic control animals were determined after onset of neurologic signs. In addition, thiamine concentration in the whole brain was determined and the studies were repeated 16-36 hours after reversal of the neurological symptoms by administration of thiamine. Encephalopathy appears only when the thiamine level falls below 20% of normal and is reversed by an increase to only 26% of normal. Both the brainstem and the cerebellum show decreased transketolase and pyruvate decarboxylase activities, the latter causing increased brain lactate. Reversal of the neurologic signs results in increases in both enzymes, with only a slight rise in that of transketolase. Affected animals also show normal cerebral ATP concentration and slightly decreased GSH levels, with little rise in the latter upon reversal. The experimental animals reached a peak weight at 2 weeks, but remained neurologically intact for 4.5-5 weeks on the low thiamine diet, although brain thiamine was decreased by 44% after 2 weeks. (42 refs.) - *M.G. Conant.*

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888 SHAHEEN, ELEANOR, ALEXANDER, DORIS, TRUSKOWSKY, MARIE, & BARBERO, GIULIO J. Failure to thrive -. A retrospective profile. *Clinical Pediatrics*, 7(5):255-261, 1968.

Among 287 patients selected from the admissions to a general children's hospital because they were below the third percentile in weight, 44 (15.2%) showed "failure to thrive" without obvious organic disease. Most of these children were below 2 years of age and had no specific complaints other than failure to grow, or, if symptomatic, had rapid cessation of symptoms after hospitalization. Two-thirds gained weight in the hospital regardless of duration of stay, and 3/4 were within normal limits of height and weight 2 years later. Social factors seemed to be significant in many of these cases, especially family constellation (youngest child), socioeconomic status (public assistance), disruption in patient's immediate family (parental illness and disruption in caretaking), disruption in extended families, and a pattern of community health and welfare agency involvement (multiple contacts). Psychosocial disruption seems to be significant in infants with growth failure, but prospective, rather than retrospective, studies are needed to clarify the association and indicate areas for intervention. (14 refs.) - *E.L. Rowan.*

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230 North Broad Street
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889 KOHLER, ELAINE E., & GOOD, THOMAS A. The infant who fails to thrive. *Hospital Practice*, 4(7):54-60, 1969.

Five steps in detecting, evaluating, diagnosing, and correcting malnutrition in infants who fail to thrive are discussed. Evaluative clinical signs include: child neglect; hidden urinary infections and respiratory diseases; lead intoxication; malformations and disproportions; and neurological competence. Feeding evaluation follows the determinations of the child's requirements, caloric intake, and caloric output. Causes of failure to thrive are: social and environmental factors when intake and weight gain are adequate; inadequate intake (retarding weight gain) and/or malabsorption; a need to increase intake to what is required for normal weight for height and age (rather than actual weight of the infant) for cases in which intake appears to be adequate but weight gain is not adequate. Nutritional rehabilitation is the next step and involves laboratory studies of infants who do not respond to simplified feeding adjustments. The fourth and fifth steps involve determining the presence and cause of malabsorption. Extensive and specific testing should be undertaken in cases of malabsorption to avoid possible recurrence of malnutrition. This systematic evaluation of malnourished infants should increase successful rehabilitation, even in cases lacking specific diagnosis. Classified photos, charted diagnosis of intake problems, and illustrations of self-perpetuating cycles of malnutrition, and of steps in the study of carbohydrate absorption are included. (No refs.) - *V.R. Shaffer.*

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890 EDOZIEN, JOSEPH C. Experimental kwashiorkor and marasmus. *Nature*, 220(5170):917-919, 1968.

Kwashiorkor and marasmus were produced in rats by feeding a low protein diet in order to elucidate the regulation of metabolic processes in mammals and the interrelations of nutrition to mental development and infection. The rats were fed a diet containing 0.5% lactalbumin or a diet containing 1% lactalbumin in restricted amounts, so as to supply the same amount of protein, but 1/2 the total calorie intake of the first diet. Controls were fed a diet containing 18% lactalbumin. The clinical findings included a mean weight at 2 months of 64.6 gm in marasmus, 72.1 gm in kwashiorkor, and 422.8 gm in controls. Hair loss occurred in marasmus and kwashiorkor, but not in the controls. An increase of liver fat occurred in kwashiorkor. The biochemical findings included total plasma proteins 3 gm/100 ml for kwashiorkor, 4 gm/100 ml in marasmus, and 6.46 gm/100 ml in controls. The blood hemoglobin was 7.7 gm/100 ml in

kwashiorkor, 10 gm/100 ml in marasmus, and 14.6 gm/100 ml in controls. The possible reasons for failure of earlier attempts to produce experimental kwashiorkor were that either the diets contained too much protein or were not continued long enough. (10 refs.) - *F.J. McNulty.*

Department of Nutrition and Food Science
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891 CHAMPAKAM, S., SRIKANTIA, S.G., & GOPALAN, G. Kwashiorkor and mental development. *American Journal of Clinical Nutrition*, 21(8):852-866, 1968.

Nineteen children who were treated for kwashiorkor were found to perform more poorly on IQ and sensory development tests than control Ss. Control groups were matched for religion, age, sex, parental education, and caste. Intelligence and sensory development tests were constructed to include testing on object assembly, memory, perceptual processes, and comprehension. The experimental Ss' performances on IQ tests were considerably lower than the controls, especially at younger ages. Retardation was particularly apparent in perceptual and abstract abilities. (8 refs.) - *V.G. Votano.*

No address

892 RABOR, IOLE F., *OH, WILLIAM, WU, PAUL, Y.K., METCOFF, JACK, VAUGHN, MARY A., & GABLER, MARJORIE. The effects of early and late feeding of intra-uterine malnourished (IUM) infants. *Pediatrics*, 42(2):261-269, 1968.

Twenty-eight intrauterine malnourished infants were evaluated for the effects of early versus late feeding. Early feeding of these infants aided glucose homeostasis and prevented neonatal hypoglycemia. Criteria for intrauterine malnourishment were: birth-weight below the tenth percentile of Colorado's intrauterine growth chart; body length longer than expected for weight; and Clifford's sign of postmaturity. Of the infants studied, 15 were below 2,040 gm and were placed in the premature nursery, while the remaining 13 were placed in the full-term nursery. In addition, 10 full-term infants were used as controls. Five full-term malnourished infants were early fed (4 hrs of age) a formula and consumed an average of 26.6 cal/kg/24 hrs, while 6 premature (<2,040 gm) malnourished babies were early fed (2-4 hrs of age) i.v. 10% glucose (32 cal/kg/ 24 hrs). Blood glucose and gases, pH, serum magnesium and calcium were determined in all infants, 24 and 48 hours postpartum, and also at 72 and 96 hours in the premature intrauterine malnourished infants. Glucagon-epinephrine tolerance tests (GETT) were performed at 24 hours. Of the infants weighing more than 2,040 gm, none had abnormal biochemical tests. Of the infants weighing less than 2,040 gm, 3 of the 9 late-fed group developed symptomatic hypoglycemia with 2 sequential blood sugar values below 20 mg/100 ml. All 3 responded dramatically to 50% glucose given intravenously. The early-fed intrauterine malnourished infants weighing less than 2,040 gm had statistically higher blood glucose values than their late-fed counterparts at 48 and 72 hours, and their response to the GETT was higher. The time of first feeding did not affect the other biochemical studies. Severely intrauterine malnourished infants appear to be unable to maintain glucose homeostasis as well as normal neonates and are, therefore, more likely to develop hypoglycemia. This could be due to a decreased hepatic glycogen reserve which can be treated by early feeding of carbohydrate. These early feedings maintain normal glucose homeostasis and replenish the glycogen reserve. (25 refs.) - *E.Gaer.*

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893 CHANDRA, R.K., PAWA, R.R., & GHAI, O.P. Sugar intolerance in malnourished infants and children. *British Medical Journal*, 4(5631):611-613, 1968.

Carbohydrate tolerance tests were performed on 100 malnourished children (CA 3 mos to 5 yrs) who were then treated with dietary therapy to produce nutritional recovery in all except 4 children, 3 of whom had persistent lactose intolerance and family history which suggested an enzyme defect. The fourth child had a persistent disaccharide and monosaccharide intolerance and continued to have recurrent bouts of diarrhea and poor weight gain. Of the 100 malnourished infants and children, 50 had a fecal pH below 6, and of these, 39 showed an abnormal lactose-loading test while 16 were intolerant to monosaccharides. Among the lactose-intolerant children, 25 had a flat absorption curve on the sucrose load and 15 on the maltose load; the D-xylose test was abnormal in all 16 children who had poor absorption of glucose-galactose. The daily fecal fat excretion exceeded 6 gm in 7 of the 18 tested children. (17 refs.) - *F.J. McNulty.*

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894 WINICK, MYRON. Nutrition and intellectual development in children. In: Association for Childhood Education International, *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, p. 25-28.

Malnutrition, especially prior to 6 months of age, causes chemical changes in the brain, a reduction in the number of brain cells, and the reduced formation of myelin and lipid molecules such as cholesterol and cerebrosides in the central nervous system. Because the effects of retarded intellectual development may become self-perpetuating, the production and distribution of an inexpensive protein-rich formula for babies which would require no refrigeration nor any special handling is suggested. (No refs.) - *V.R. Shaffer.*

895 SIMONSON, MARIA, & CHOW, BACON F. Maternal diet, growth and behavior. In: Association for Childhood Education International. *Nutrition and Intellectual Growth in Children.* Sunderlin, Sylvia, & Wills, Brooke, eds. Washington, D.C., 1969, p. 29-32.

Tests of maternal dietary restriction during gestation and lactation periods indicate that significant changes occur in growth and behavior of offspring. Results were: dietary amino acids shortened the gestation period; higher protein diets produced larger offspring; underfed pregnant rats produced smaller offspring with retarded development; and metabolic requirements of offspring were changed by altering maternal diet. Offspring of underfed rats of the McCollum strain showed reduced body weights of 25% at birth, reduced resistance to stress, impaired antibody production, and behavioral abnormalities. The findings were later reproduced with rats of the Sprague-Dawley strain. In addition, deprived rats required twice the time and food as controls to acquire an ultimate weight of 375 gm. The same results were obtained on a protein-deficient diet in the gestation period. Behavioral abnormalities included tremors, seizures, catatonia, and emotional instability. (14 refs.) - *V. R. Shaffer.*

896 COBAK, VERA, NAJDANOVIC, R., CURCIC, B., SERSTNEV, E., & SKORIC, L. The long-term prognosis of infantile malnutrition. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 521-532.

The weight, height, bone age, and IQ of 344 children (CA 7-14 yrs) who had been previously hospitalized for malnutrition at the age of 4-24 months, were determined and compared with those of 46 controls (CA 7-14 yrs). The heights and weights showed a significant positive difference for previously undernourished children aged 8, 9, and 12 years. In addition, the experimental group showed subnormal bone maturation, and 46.6% had IQs of 71-90, compared with about 20% in the control group. Positive correlations existed between IQ test score and place of residence (urban vs rural), father's occupation, actual body weight and height, and the deficit in body weight in infancy. (28 refs.) - *M. G. Conant.*

897 BAZSO, J., LIPAK, J., SOOS, A., MALAN, M., & ZSADANYI, O. The later effects of prenatal malnutrition on the physical and mental development of twins. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 404-413.

Physical measurements made on 41 twin pairs (CA 6-16 yrs) of dissimilar size at birth showed that the growth of the prenatally retarded twin is slower than that of the sibling of normal birth-weight. For monozygotic twins, the significant intrapair deviation existing later in childhood supports the theory that prenatal growth retardation is associated with significantly slower or stunted growth. The low birth-weight for gestational age is closely correlated with postnatal retarded mental development and is probably due to prolonged intrauterine deprivation, as is prenatal slow growth. For children whose birth-weight was below the tenth percentile, the incidence of handicaps and subnormal intelligence is about twice as frequent as in children of similar gestational age whose birth-weight was above the fiftieth percentile. In addition, the low birth-weight twins showed significant deviations in the field of visuomotor perception and motor development and significantly more behavioral disorders, such as emotional immaturity, adaptational disorder, and intellectual inferiority complex. (20 refs.) - *M.G. Conant.*

898 WAISMAN, H.A. The role of malnutrition in the development of mental retardation. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 515-518.

The role of malnutrition in the development of MR is difficult to assess due to the wide spectrum of forms of malnutrition, the lack of uniformity in the tests for intellectual capacity, and the lack of reliable answers by the ill Ss. In addition, it is difficult to distinguish between prenatal and postnatal brain damage, and the effects of maternal malnutrition on the growth of the human brain are also unknown. Newborn rhesus monkeys were fed a commercially modified milk formula which was altered in calories and/or protein. The casein in the formula was found to be a protein which supplied good nutrition even when 1/2 the normal quantity was taken, but severe malnutrition was produced when 1/4 the normal protein, with or without normal calories, was used. (10 refs.) - *M.G. Conant.*

899 DOBBING, J. Early malnutrition in relation to development of brain and behavior. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 519-520.

Experimental work has supported the hypothesis that the various developmental processes in the brain are most vulnerable to restriction at the time when they are occurring most actively and, if growth is restricted at these times, recovery is only partial on restoration of a normal diet. Variation of the nutritional intake of suckling rats by rearing litters of different size indicated that animals from litters of 15 or more had a body weight at weaning of about 1/2 that of animals from litters of 3 and *ad libitum* feeding after weaning never restored the weight of the smaller animals. Rats undernourished later in the period of brain growth and vulnerability are less permanently affected, and the gross composition of the brains of adult rats were unaffected even by starvation. (10 refs.) - *M.G. Conant.*

900 BOTHA-ANTOUN, E., BABAYAN, S., & HARFOUCHE, J.K. Intellectual development related to nutritional status. *Journal of Tropical Pediatrics*, 14(3):112-115, 1968.

A sample of 22 Lebanese children who were poorly nourished during the first 18 months of life (below the tenth percentile in weight and length) walked and talked later than did their adequately nourished controls and had significantly lower IQs when tested at age 4-5 years. Children in both groups were normal at birth and followed regularly in a pediatric clinic. Undernutrition retarded physical growth and development as well as intellectual development (mean IQ in the low nutritional group was 79.5 while in the controls, the mean was 103), and both verbal and performance scores were significantly lower than in controls. However, the same neglectful attitudes which led to the nutritional deficiency may also have contributed to a deficiency of intellectual stimulation, another factor known to result in MR. (9 refs.) - *E.L. Rowan.*

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901 SCRIMSHAW, NEVIN S. Infant malnutrition and adult learning. *Saturday Review*, (March 16):64-66, 84, 1968.

For most of the children in developing countries and poverty areas of industrialized nations, malnutrition during the first 3 years of life produces not only a higher rate of mortality and morbidity, but also produces retardation in both physical and mental development. Inadequate intake of calories and protein causes irreversible damage to the rapidly developing central nervous system. Animal studies have shown cellular damage and reduction in brain size result from malnutrition and, by implication, the same may be true of malnourished humans. Field studies are complicated by the fact that nutritional deprivation is closely associated with social and psychological deprivation which has the same adverse effects as malnutrition on learning, behavior, and anatomical and biochemical development of the brain. Infection is synergistic with malnutrition in producing deficiencies in intellectual performance. Social factors will be difficult to control, but elimination of malnutrition and infection is a feasible goal. Every child in the world should have the opportunity to attain his full potential, and this pressing problem impels public concern and action. (No refs.) - *E.L. Rowan.*

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New growths

902 TEPLICK, J. GEORGE. Tuberous sclerosis—Extensive roentgen findings without the usual clinical picture: A case report. *Radiology*, 93(1):53-55, 1969.

Tuberous sclerosis is recognized clinically by the triad of adenoma sebaceum, MR, and epileptiform seizures; however, these findings are extremely variable. The basic lesion, hamartomatous tissue change, can be recognized radiologically in brain, kidneys, bones, and chest. A middle-aged woman in whom the diagnosis of tuberous sclerosis was made at autopsy showed hamartomatous lesions of both kidneys, intracranial calcifications, cyst-like changes and thickened trabeculae in the phalanges, spinal pedicle sclerosis, pulmonary interstitial fibrosis, and emphysema. The complete and pathognomonic roentgen syndrome may be seen even in the absence of classical clinical findings. (12 refs.) - *E.L. Rowan.*

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903 CAMPBELL, C.B., & MORTIMER, R.H. A functioning malignant phaeochromocytoma occurring in a patient with neurofibromatosis. *Australasian Annals of Medicine*, 17(4):331-333, 1968.

A 43-year-old man with von Recklinghausen's neurofibromatosis was found to have a malignant pheochromocytoma with metastases to the scapula, vertebral bodies, calvarium, long bones, liver, and visceral pleura. Clinically, he presented with paroxysmal hypertension and tachycardia, and the diagnosis of pheochromocytoma was verified by response to phentolamine and by increased urinary catecholamine excretion. Although it has been estimated that between 5 and 25% of patients with pheochromocytoma also have neurofibromatosis, only 2 cases with malignancy have previously been recorded. (10 refs.) - *E.L. Rowan.*

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904 BOOTH, A.E. Lateral thoracic meningocele. *Journal of Neurology, Neurosurgery and Psychiatry*, 32(2):111-115, 1969.

A woman with cutaneous manifestations of von Recklinghausen's neurofibromatosis began complaining of backache at age 29 and continued to do so for 13 years. Pain was largely in the D 9-10 root distribution on the right side of the spine, but neurological examination was normal. Spinal radiographs showed erosion of the posterior aspects of vertebral bodies and thinning of the pedicles. Myelography in the lateral decubitus position confirmed the presence of a lateral thoracic meningocele. After surgery during which a posterior rhizotomy was performed on the affected roots and the sac of the meningocele was obliterated, the patient became asymptomatic. Lateral thoracic meningocele has now been reported in 55 cases of von Recklinghausen's neurofibromatosis and should be considered in the differential diagnosis of back pain associated with this entity. Asymptomatic meningoceles should be approached surgically only with their rapid enlargement or the development of symptoms. (16 refs.) - *E.L. Rowan.*

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905 MILES, JOHN, PENNYBACKER, JOE, & SHELDON, PHILIP. Intrathoracic meningocele: Its development and association with neurofibromatosis. *Journal of Neurology, Neurosurgery and Psychiatry*, 32(2): 99-110, 1969.

The addition of 4 cases (all with neurofibromatosis) brings the total of antero-lateral meningoceles reported in the literature to 70. Most have been asymptomatic and discovered by chance during middle life; however, some have been associated with pain, neurological abnormalities, and pulmonary symptoms. Approximately 2/3 of the cases have had kyphoscoliosis and scalloping of the vertebral bodies and 1/2 have had rib changes. In 64%, there was clinical evidence of von Recklinghausen's neurofibromatosis, and it has been suggested that the meningocele may be the only manifestation of this entity in the other cases. Etiology may be on the basis of congenital regional bony derangement. Without evidence of cord compression when myelography may be needed to rule out a neurogenic tumor, the diagnosis can usually be made on the basis of plain radiographs and associated findings. Surgical intervention should be reserved for cord compression, respiratory distress, or rapid meningocele enlargement. (24 refs.) - *E.L. Rowan.*

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Birmingham, England

906 OPPENHEIMER, D.R. The effect of irradiation on a medulloblastoma. *Journal of Neurology, Neurosurgery and Psychiatry*, 32(2): 94-98, 1969.

An 11-year-old boy who had a medulloblastoma was treated on occasions with radiotherapy; postmortem comparison of irradiated tissue with unirradiated tumor, and previous biopsy specimens revealed a peculiar transformation in the tumor 10 days after the second irradiation. At age 10, the patient presented with neurological symptoms (nausea, vomiting, dizziness, headache, and unsteady gait). Air ventriculography showed a left cerebellar mass which was excised. Histological examination revealed that the mass was a typical medulloblastoma. Radiation therapy (roentgen dosages of 2,700 increased to 3,500) was given for 5 weeks. Although the symptoms disappeared, they reappeared a year later; 16 months after the first operation, a tumor was found in the right cerebellar hemisphere and in the fourth ventricle. Radiation therapy (2,340 roentgens) was administered, but was discontinued after 3 weeks, because the S continued to deteriorate. Death occurred 10 days later. At the postmortem examination the intracranial parts of the tumor resembled a giant-celled glioblastoma, characterized by necrosis and cellular pleomorphism, whereas the tumor surrounding the spinal cord was a typical medulloblastoma—identical with specimens taken from the cerebellum before irradiation. (7 refs.) - *F.J. McNulty.*

Radcliffe Infirmary
Oxford, England

907 DANIEL, SARA JO, & CASSADY, GEORGE. Non-immunologic hydrops fetalis associated with a large hemangioendothelioma. *Pediatrics*, 42(5):828-833, 1968.

Hydrops fetalis was observed in an infant who exhibited no immunologic rejection nor anemia, but who had a large hemangioendothelioma containing numerous arteriovenous shunts. The presence of arteriovenous communications in the abdominal tumor probably led to high-output failure before birth. Subsequent hypoxemia, acidemia, tissue hypoxia, and acidosis resulted in the full-blown syndrome. Fetal hydrops can occur without a defect or deficiency in oxygen-carrying red cells. (12 refs.) - *E.L. Rowan.*

University of Alabama Medical Center
1919 7th Avenue South
Birmingham, Alabama 35233

908 WELMAN, A.J. Brain tumor and the tree-test. *Diseases of the Nervous System*, 29(9):593-598, 1968.

A comparison of trees drawn by 80 patients with brain tumors verified at surgery and 80 neurotics with symptoms of a brain lesion but with negative workup showed that the patients with brain lesions produced pictures difficult to identify as "trees," either very large or very small, and not centered on the paper. The bases of these trees were circles, sloping lines, or nonexistent. Single line trunks, trunks open at both ends, and absence of landscapes were also common to the brain-damaged group. A scale based on weighted scores for the presence or absence of these characteristics significantly differentiated patients with hemispheric tumors from psychoneurotics, but patients with noncompressing lesions were similar to the neurotic group. The effect of space-occupying lesions on cognitive function requires further study. (22 refs.) - *E.L. Rowan.*

Institute of Neurological Sciences
Leyden, The Netherlands

Prenatal influence

909 JOHNSON, RICHARD T., & JOHNSON, KENNETH P. Hydrocephalus following viral infection: The pathology of aqueductal stenosis developing after experimental mumps virus infection. *Journal of Neuropathology and Experimental Neurology*, 27(4):591-606, 1968.

Suckling hamsters developed aqueduct of Sylvius stenosis and hydrocephalus as a result of subclinical infection with mumps virus. The hamsters (1 to 4 days old) were given a single intracerebral injection of mumps virus (150% tissue culture dose). Control hamsters received the virus plus antiserum. Virus growth was maximum 5 days after inoculation, and virus was no longer recovered at 9 days; however, at no time during the infection did the animals demonstrate signs of illness. Virus growth was limited to ependymal cells within the central nervous system, with subsequent loss of these cells. Occlusion of the aqueduct of Sylvius started to develop by the fourteenth day; by the twenty-first day, 50% of the animals had signs of hydrocephalus. Ultimately, 78 out of 82 hamsters developed manifest clinic hydrocephalus; the remaining 4 hamsters also had severe hydrocephalus, but this was not determined until necropsy. The aqueduct of Sylvius was reduced in caliber or occluded in all experimental animals at the level of the posterior fibers of the posterior commissure. Comparisons with human cases of hydrocephalus show remarkable similarities: time of hydrocephalus occurrence; spontaneous remissions; choroid plexus atrophy; pathological alterations in white matter and preservation of the cortex; and absence of inflammatory signs or gliosis. The similarities between human and hamster are especially striking in the area of the aqueduct. Further research with this experimental model is indicated. (28 refs.) - *K. Drossman.*

Department of Medicine
Cleveland Metropolitan General Hospital
Cleveland, Ohio

910 LAURENCE, K.M. Neurological and intellectual sequelae of hydrocephalus. *Archives of Neurology*, 20(1):73-81, 1969.

A group of 70 survivors with spontaneously arrested hydrocephalus not associated with spina bifida were examined between 2 and 20 years after the original diagnosis was made. The mean IQ for the group was 68.2 and included 41.4% over 85 and 28.6% under 50. Severe mental handicap was associated with severe physical disability and severe hydrocephalus. Significant neurological symptoms were spasticity (more marked in legs than arms), ataxia, imbalance, finger clumsiness, and hand tremor. Intelligence function was characterized by scatter on the scores of various subtests, and "shallow intellect" manifested as verbal facility unmatched by other modalities of intelligence. Both features were related to the degree of hydrocephalus (thinness of the cerebral mantle). A lack of social achievement was correlated with physical disability but not with intelligence as individual responses to disability were dependent on many other variables. Continued follow-up demonstrated that arrest of hydrocephalus continued in all but 3 cases and that neurological and intellectual function remained relatively stable in the majority of cases. (17 refs.) - *E.L. Rowan.*

Llandough Hospital
Penarth, Glamorgan, United Kingdom

911 GESCHWIND, N. The mechanism of normal pressure hydrocephalus. *Journal of the Neurological Sciences*, 7(3):481-493, 1968.

The theoretical basis of the syndrome of progressive dementia in association with normal pressure hydrocephalus is discussed. The total force theory argues that a normal pressure could maintain the ventricles in an enlarged state because the total force (pressure x area) increases as the surface area of the ventricles increases. It is shown mathematically on physical grounds that the total force theory does not account for simple systems of expansion without increase in pressure or for differential expansion, and that in such systems, changes in pressure and differential expansion depend on the structural properties of the container. In a more complex system, such as the ventricles, any theory of pressure and differential volume changes must take the structural properties of the ventricular walls into consideration. (16 refs.) - *F.J. McNulty.*

Boston University Medical School
Boston, Massachusetts 02118

912 FORREST, D.M., & COOPER, D.G.W. Complications of ventriculo-atrial shunts: A review of 455 cases. *Journal of Neurosurgery*, 29(5):506-512, 1968.

Longitudinal studies on 455 infants with ventriculo-atrial shunts for treatment of infantile hydrocephalus demonstrated a mortality rate of 10%

due directly to the valve or its failure. About 90% of children with spina bifida or cranium bifidum had the shunt operation during the first month of life; those with pure hydrocephalus were operated on between 1 and 6 months. Standard procedures were followed in most cases, and the Holter valve was used in all cases. Seventy-eight deaths occurred in the series; major causes of death were sepsis or blockage of valve system after closure of fontanelles. Sepsis may be reduced by simplifying the techniques and by reducing operating time. Increased attention to those patients who seem to be making progress may decrease mortality from blockage. Valve failure itself was rare, but blockage of the proximal or distal catheter was common. Children should have prophylactic lengthening of the distal catheter to keep pace with normal growth. The valve system will have to be maintained indefinitely for most children. (18 refs.) - *B. Bradley.*

Spina Bifida Research Unit
Queen Mary's Hospital for Children
Carshalton, Surrey, England

913 ECKSTEIN, H.B. Complications of ventriculo-atrial drainage for hydrocephalus. *Nursing Mirror*, 126(19):29-30, 1968.

Although hydrocephalus is satisfactorily managed with a ventriculo-atrial shunt, approximately 1/2 of the children so treated will have one or more complications before the age of 5 years. Blockage of the shunt system and infection (usually *Staphylococcus albus*) are the most common complications but are relatively easy to recognize and treat with valve replacement and/or antibiotics. Pulmonary emboli, focal nephritis, superior vena cava obstruction, and raised pressure in the posterior fossa occur less frequently. There is much evidence to suggest that the majority of cases undergo "natural arrest" so that the valve need not last indefinitely. (No refs.) - *E.L. Rowan.*

Queen Mary's Hospital for Children
Carshalton, Surrey, England

914 STICKLER, GUNNAR B., SHIN, MYUNG H., BURKE, EDMUND C., HOLLEY, KEITH E., MILLER, ROSS H., & SEGAR, WILLIAM E. Diffuse glomerulonephritis associated with infected ventriculoatrial shunt. *New England Journal of Medicine*, 279(20):1077-1082, 1968.

Of 6 patients in whom ventriculoatrial shunts became infected and in whom diffuse glomerulonephritis was diagnosed 1-74 months after shunt insertion, 3 showed improved renal function after removal of the shunt, and 3 died from progressive central nervous system disease. Four of the patients had the nephrotic syndrome (characterized by edema and proteinuria), all had hematuria, elevated blood urea or urea nitrogen, and lowered hemoglobin level; 5 had hepatosplenomegaly. The infecting organism in 5 cases was a coagulase-negative *Staphylococcus*. The renal disease probably resulted from an immunologic reaction to the staphylococcal infection rather than from direct bacterial embolization of the kidney. (9 refs.) - *M.G. Conant.*

Mayo Clinic—Section of Pediatrics
Rochester, Minnesota 55901

915 Treatment of hydrocephalus. *Lancet*, 1(7587):191-192, 1969. (Editorial)

Hydrocephalus, irrespective of cause, can be successfully treated by a ventriculo-atrial shunt. Despite the high rate of morbidity and complications (blockage, infection, nd embolization), follow-up studies have shown a much greater chance of survival and mental normality in children so treated. (26 refs.) - *E. L. Rowan.*

916 RODGERS, HELEN M. A water pillow, too. *American Journal of Nursing*, 68(11):2359-2360, 1968.

A water-filled pillow was found to be a valuable aid in the provision of comfort and the treatment of ulcerated pressure areas in hydrocephalic children. A 4 1/2-year-old child with severe skin ulcers was treated with such a device, and during the 5 months of observation, the skin ulcers have healed, the child's appetite has improved, she has gained weight, and she has become less irritable. Although the temperature of the water appears to make no difference, it is important that the pillow contain only enough water to maintain flotation of the child's head. (4 refs.) - *M. Drossman.*

West Seneca State School
West Seneca, New York

917 LORBER, JOHN. Neurologic assessment of neonates with spina bifida: Notes on some diagnostic and therapeutic considerations. *Clinical Pediatrics*, 7(11):676-679, 1968.

Newborns with spina bifida cystica should immediately be assessed neurologically for evidence of motor function, sphincter control, hydrocephalus, and infection of the central nervous system. If the malformation is surgically corrected within the first few hours of life, there is hope of motor function, especially if muscle groups display spontaneous activity (less if they respond only to faradic stimulation). Function of anal and bladder sphincters can be assessed by observation. Hydrocephalus is not a contraindication to rapid surgical covering of lesions and, if severe, requires a ventriculocaval shunt during the first week of life. Ventriculitis is best diagnosed by examination of ventricular fluid and responds to appropriate antibiotic therapy. Rapid definitive surgical treatment may mean the difference between a paralyzed, incontinent, MR individual and a physically intact, productive one. (8 refs.) - *E.L. Rowan.*

Department of Child Health
University of Sheffield
Sheffield S10 2th, England

918 PADGET, DORCAS H. Spina bifida and embryonic neuroschisis—A causal relationship. Definition of the postnatal conformations involving a bifid spine. *Johns Hopkins Medical Journal*, 123(5):233-252, 1968.

Neuroschisis is defined as an embryonic phenomenon which explains the morphogenesis of a cleft neuraxis in cranium bifida and spina bifida. Neuroschisis, which is apparently not uncommon and can involve more than

388-622 O - 70 - 5

one neural cleft, completely severs the dorsal wall of the neural tube after closure has occurred and thereby establishes some degree of secondary continuity between damaged neural and cutaneous ectoderm; thus, the complete development of one or more vertebral laminae is inhibited. The aperta, cystica, and occulta types of spina bifida can be explained morphologically and embryologically by means of this defect. Neuroschisis probably results from an injury involving the embryonic ectoderm. (31 refs.) - *M.G. Conant.*

228 Homewood Terrace
Baltimore, Maryland 21218

919 HINTZ, R.L., MENKING, M. & SOTOS, J.F. Familial holoprosencephaly with endocrine dysgenesis. *Journal of Pediatrics*, 72(1):81-87, 1968.

Two female siblings with cleft palate and other facial and cranial deformities were determined to have holoprosencephaly. One S, who died within 24 hours, had no pituitary tissue and markedly hypoplastic adrenal cortex tissue. Her sibling was treated with phenobarbital, Dilantin, pitressin tannate, and cortisone acetate and is now 10 months old. A ventriculogram demonstrated forebrain abnormalities including a dilated holosphere, absence of the interhemispheric fissure, and less than 1 cm of cortical tissue. Extensive endocrine function tests conducted on this second sibling demonstrated diminished adrenocorticotropic hormone reserve, secondary adrenal insufficiency, and Pitressin responsive diabetes insipidus. Four other instances of familial holoprosencephaly have been reported. Future cases should be carefully tested for neuroendocrine deficiencies. (21 refs.) - *K. Drossman.*

Children's Hospital
561 South 17th Street
Columbus, Ohio 43205

920 SCHIMSCHOCK, JAMES R., *CARLSON, C.B., & OJEMANN, LINDA M. Massive spasms associated with holoprosencephaly. *American Journal of Diseases of Children*, 118(3):520-524, 1969.

Massive spasms and hypsarrhythmia appear to be age-specific response patterns to disorders in the infant brain and are reported for the first time in association with holoprosencephaly. An infant girl with a midline facial defect was otherwise well until the onset of seizures at age 4 1/2 months. An EEG was characteristic of hypsarrhythmia with random high voltage slow waves and spikes. Vasopressin-sensitive diabetes insipidus was also noted. Fractional pneumoencephalography revealed lobar holoprosencephaly (a failure of midline cleavage of the telencephalon). Although the patient's seizures have been controlled by oral diazepam, she has failed to make developmental progress. (13 refs.) - *E.L. Rowan.*

University of Washington School of Medicine
Seattle, Washington 98105

921 LINDENBERG, RICHARD, & SWANSON, PHILLIP D. Infantile hydranencephaly—A report of five cases of infarction of both cerebral hemispheres in infancy. *Brain*, 90(4):839-850, 1967.

Softening of the cerebral cortical areas served by the anterior and middle cerebral arteries, probably caused by compression of the internal carotid arteries during an acute illness in infancy, was found on autopsy in 5 children. In 4 of the 5 cases, the areas served by the posterior cerebral arteries also had softening and neuronal loss. Meningitis occurred in infancy in 2 of the children, and circulatory collapse, increased intracranial pressure, and possible traumatic cerebral hemorrhage occurred in the other 3. With the exception of non-obstructive intimal proliferation of the internal carotids in 1 child, the cerebral and carotid arteries were patent. In all cases, the basal ganglia appeared grossly normal and microscopically damaged. Arterial spasm and cervical arterial compression are possible, but unlikely causes; whereas, intracranial compression due to cerebral edema is both possible and likely. Of the 5 cases, 4 showed antemortem signs of increased intracranial pressure. Compression of the carotids from a short rise of intracranial pressure above the arterial pressure which could be caused by circulatory collapse as in hypoxia would lead to self-perpetuating cerbral edema as more and more of the brain undergoes ischemia. Since the posterior fossa contents were not affected, it would appear that the vertebral arteries were never occluded. Finally, the current lesions are similar to those seen in hydranencephaly of unknown etiology and may represent an infantile form. (24 refs.) - *E. Gaer.*

Johns Hopkins University School of Medicine
Baltimore, Maryland 21205

922 HALSEY, JAMES H., JR., ALLEN, NORMAN, & CHAMBERLIN, HARRIE R. Chronic decerebrate state in infancy: Neurologic observations in long surviving cases of hydranencephaly. *Archives of Neurology*, 19(3):339-346, 1968.

Eleven hydranencephalic infants showed persistent neonatal automatisms including the Moro, grasp, and stepping reflexes. Visual and tactile placing movements were absent; however, a crude form of proprioceptive placing and a crude form of primitive progression movement were present. Although muscle tone was increased in all cases, only one S developed true dystonia with a loss of the primitive reflexes. This reflects a maturation of the residual telencephalic (or cortical) function. The severity of the physiological disorder could not be related to the cranial transilluminability. The earliest reliable indicator of cortical function would, therefore, be the observation of the visual groping response for an object at ages 4 to 6 months. (37 refs.) - *W. Asher.*

University of Alabama Medical Center
Birmingham, Alabama 35233

923 APPENZELLER, O., & SNYDER, R.D. Autonomic failure with persistent fever in cerebral gigantism. *Journal of Neurology, Neurosurgery and Psychiatry*, 32(2):123-128, 1969.

An SMR 19-month-old girl with cerebral gigantism manifested as an increase in height and weight and

accelerated skeletal maturation was also noted to be constantly febrile but with no known focus of infection. In addition, there was severe hypotonia and no evidence of meaningful vision. Autonomic function tests pointed to a central failure of temperature regulation. Sweating and shivering could not be induced by body heating or cooling; however, peripheral sweat glands and sensory fibers were intact. Central thermoregulation is thought to be a hypothalamic function; in this case, a pneumoencephalogram showed a large interpeduncular cistern consistent with atrophy in the region of the hypothalamus. Findings in this patient lend support to the theory that cerebral gigantism is a result of hypothalamic dysfunction, although the mechanism is unclear. (16 refs.) - *E.L. Rowan.*

University of New Mexico Medical School
Albuquerque, New Mexico 87106

924 DE BARROS, M. CAETANO, FARIAS, W., ATAIDE, L., & LINS, S. Basilar impression and Arnold-Chiari malformation: A study of 66 cases. *Journal of Neurology, Neurosurgery and Psychiatry*, 31(6):596-605, 1968.

Sixty-six patients with clinical symptoms of basilar impression including lower limb weakness, gait difficulties, headache, dizziness, and dysphagia were investigated for age, race, age-at-onset, and presence or absence of the Arnold-Chiari malformation. Symptoms first appeared in the second and third decade of life in most cases, even though, as a congenital anomaly, symptoms would be expected to manifest themselves earlier. There was preponderance of males, and the majority of patients were white or mulatto. Basilar impression associated with Arnold-Chiari malformation is extremely common in Northeast Brazil and diagnosis can be confirmed radiographically. Treatment is by surgical suboccipital craniectomy with C1 or C2 laminectomy and opening of the dura and section of all constrictive dural and arachnoid bands. Such surgery has been satisfactory; in 32 Ss in which surgery was done, 2 were completely cured, 19 were improved, 4 were unchanged, and 7 died. Two patients later required re-operation. (32 refs.) - *K. Drossman.*

Medical School
Federal University of Pernambuco
Pernambuco, Brazil

925 PRYOR, HELEN B., & *THELANDER, HULDA. Abnormally small head size and intellect in children. *Journal of Pediatrics*, 73(4):593-598, 1968.

The relation of the degree of MR, as measured by IQ, to head circumference was investigated in 212 microcephalic children; all were also retarded in height when compared by age and sex with normal children. The stunting of height of microcephalic children became more marked with age. IQ was directly related to head size in microcephalic patients. Microcephalic children with highest IQs included 2 congenital amputees, 2 with cleft palates, 2 with congenital heart defects, and 3 with cerebral palsy. There were 29 children with IQs below 30, and 18 of these had primary microcephaly. Among the remaining 11, 2 had inborn errors of metabolism, 5 had multiple congenital anomalies, and 4 had cerebral palsy. All of those children with lowest IQs had more than one congenital defect. Prenatal rubella infection was found in the medical histories of 27 children. Cerebral palsy occurred among children with all grades of intelligence and all kinds of anomalies. (17 refs.) - *F.J. McNulty.*

*659 Middlefield Road
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926 FAMILANT, JOSEPH W. Cornelia de Lange syndrome: A second case is reported in the Negro. *Clinical Pediatrics*, 7(7):411-415, 1968.

A Negro infant with the features of the Cornelia de Lange syndrome was also found to be deficient in serum β-globulin. This is only the second case of de Lange's syndrome reported in a Negro. The child weighed 1,300 gm at birth and by 3 months he resembled a "little wrestler" with a husky build. Head and height dimensions were below the third percentile, and anomalies of the eyes, ears, nose, face, neck, forearms, hands, and digits were present. Facies were hirsute, the right testis was not totally descended, the penis and scrotum were hypoplastic, and most muscles were hypertonic. Aside from the β-globulin deficiency, other laboratory and chromosomal studies were within normal limits. Since genetic studies, laboratory data, and autopsy findings are inconclusive in this disorder, morphology is the most important diagnostic criterion. Obligatory findings include poor growth and development, mental and motor retardation, and functional and morphological facial abnormalities. This case is consistent with others regarding biochemical, radiological, and dermatoglyphic findings. However, since this case is the first to demonstrate a β-globulin deficiency, and since another case reported hyposthenuria, a physiological or bioimmunological defect not previously known may also be a feature of the syndrome. (25 refs.) - *E. Gaer.*

30 Lakeshore Drive
Apartment 10
Hampton, Virginia

927 BIGGERSTAFF, ROBERT H., & MAZAHERI, MOHAMMAD. Oral manifestations of the Ellis-van Creveld syndrome. *Journal of the American Dental Association*, 77(5):1090-1096, 1968.

The oral manifestations of the Ellis-van Creveld syndrome are a result of the chondroectodermal dysplasia which, along with polydactylia of the hands and congenital heart disease, are characteristic findings in this hereditary complex. Dental examination of 5 Amish children (CA 6 to 14 yrs) with the clinical syndrome showed that all had bilateral partial clefts of both maxilla and mandible, continuous frenum of both maxilla and mandible, dystrophic philtrum, congenitally absent teeth, enamel dysplasia, malformed teeth, and malocclusion. These pathognomonic oral findings differentiate the Ellis-van Creveld syndrome from the oro-facial-digital syndrome (tripartite maxilla) and the asphyxiating thoracic dystrophy syndromes. Further

studies in the anatomy of abnormal dentition in hereditary syndromes may contribute information about the morphogenesis of deciduous and permanent teeth. (8 refs.) - *E.L. Rowan.*

University of Pennslyvania
3439 Walnut Street
Philadelphia, Pennsylvania 19104

928 NUYTS, J.P., & BOMBART, E. La dyscephalie e tete d'oiseau: Syndrome de Hallermann-Streiff-Francois (Dyscephaly with bird-head: Hallermann-Streiff-Francois syndrome). *La Medecine Infantile*, 75(6):425-432, 1968.

The Hallermann-Streiff-Francois syndrome is characterized by dyscephaly with a bird-head appearance, dental anomalies, nanism, hypotrichosis, cutaneous atrophy, microphthalmia, and congenital bilateral cataracts. Diagnosis is possible at a very early age, and evaluation of the psychomotor and mental prognoses can also be performed early. The possible association of this syndrome with anomalies of fingers and toes presents a problem concerning its relation with oculodentofacial dysplasia. The etiology of this disorder needs further elucidation. (29 refs.) - *G. Pura.*

No address

929 BALDWIN, JAMES L. Dysostosis craniofacialis of Crouzon: A summary of recent literature and case reports with emphasis on involvement of the ear. *Laryngoscope*, 78(10): 1660-1976, 1968.

Crouzon's disease is definitely familial in nature and is characterized by skull deformity, hypoplasia of the maxilla, exophthalmos, strabismus, rapidly failing vision, and, frequently, impaired hearing. Early recognition of the disease is important in preventing blindness and MR. Treatment consists of decompression surgery. Of 4 cases described, 3 underwent surgery on the skull to permit brain growth. Impaired hearing was present in 3 cases (the fourth died at 5 mos). Studies on temporal bone sections from 2 additional cases of Crouzon's disease, the 4 cases presented here, and those reported in the literature indicate that the hearing loss frequently seen in Crouzon's disease may be due to several causes: atresia; deformities of the external canal, conducting mechanism, and Eustachian tube; early maldevelopment of the tube and ossicular chain; and susceptibility to middle ear infection related to tubal dysfunction. Distorted skull growth and/or compression of nerves and blood vessels may also be contributing factors. (27 refs.) - *M.G. Conant.*

Department of Otolaryngology
University of Texas Southwestern
Medical School
Dallas, Texas 75235

930 ALFIERI, A., ALU, C., & CECCARINI, M. Dysostose cranio-faciale hereditaire: Contribution a l'etude des rapports entre la maladie d'Apert et la maladie de Crouzon (Hereditary craniofacial dysostosis: Contribution to the study of the relation between Apert's disease and Crouzon's disease). *Journal de Genethique Humaine*, 16(3-4):1-14, 1967-1968.

A clinical observation of a family, in which 5 out of 8 males are affected with Crouzon's craniofacial dysostosis (indicative of a dominant mode of heredity), showed that in the sibship of the second generation Crouzon's disease was associated with syndactylia transmitted by the mother only. A significant number of miscarriages are also noted. The morphological and clinical characters of craniofacial dysostosis and its possible association with other hereditary anomalies indicated that Apert's disease may be the result of Crouzon's disease associated with syndactylia. (35 refs.) - *G. Pura.*

Istituto di Genetica Medica e Gemellologia
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Rome, Italy

931 FRASER, W.I., & MacGILLIVRAY, R.C. Cervico-oculo-acoustic dysplasia (The syndrome of Wildervanck). *Journal of Mental Deficiency Research*, 12(4):322-329, 1968.

Two severe cases of perceptive deafness and Klippel-Feil anomaly with associated malformations are described. Case 1 (female) showed a deformed mouth, micrognathia, moderate kyphosis, microstomia, and moderate perceptive deafness in the left ear. Her Terman-Merrill IQ was 55 at age 6 years (MA of 5.4 yrs). Case 2 (female) showed a cleft palate, severe MR, retarded psychomotor development, microstomia, microphthalmia, and no response to sounds at 9 years and her developmental age (Griffiths) was 5 months. These cases of cervico-oculo-acoustic dysplasia, together with 5 others noted, have symptoms overlapping those of the first arch syndrome, with several intermediate forms existing (Franceschetti, Goldenhar, Hallerman-Streiff, Rubenstein-Taybi, and Turner syndromes). It is suggested that the cluster of symptoms called the cervico-oculo-acoustic syndrome be called the Wildervanck syndrome. (17 refs.) - *M.G. Conant.*

Lennox Castle
Glasgow, Scotland

932 PARK, SANG C., NEEDLES, CARL F., DIMICH, IVAN, & SUSSMAN, LEONARD. Congenital heart disease in an infant with the Smith-Lemli-Opitz syndrome. *Journal of Pediatrics*, 73(6):896-902, 1968.

The Smith-Lemli-Opitz syndrome includes intrauterine growth retardation, failure to thrive, vomiting, MR, hypospadias and cryptorchidism in males, and multiple anomalies of the extremities. A 5-day-old boy with features of this disorder also had congenital heart

disease. Although environmental factors cannot be ruled out, an autosomal recessive mode of inheritance is probable. It is unlikely that the association with congenital heart disease in this infant is a coincidence because both this syndrome and cardiac malformations occur infrequently. (8 refs.) - *V.G. Votano.*

Department of Pediatrics
Mount Sinai School of Medicine
New York, New York 10029

933 GELLIS, SYDNEY S., & FEINGOLD, MURRAY. Smith-Lemli-Opitz syndrome. *American Journal of Diseases of Children*, 115(5):603-604, 1968.

Characteristics associated with Smith-Lemli-Opitz syndrome, shown in 6 color photographs, include mental and motor retardation, and abnormalities of the face, bone structure, and male genitals. The syndrome is probably transmitted as an autosomal recessive. (4 refs.) - *J.P. West.*

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Boston, Massachusetts 02111

934 SMITHELLS, R.W. Smith-Lemli-Opitz syndrome. *Developmental Medicine and Child Neurology*, 10(5):663-665, 1968. (Annotation)

Recognition of the Smith-Lemli-Opitz syndrome—probably an autosomal recessive inheritance with a 1:4 recurrence risk—is of practical value for genetic counseling. The syndrome is characterized by: short stature and failure to thrive; intrauterine growth retardation; microcephaly and micrognathia; broad upturned nose; epicanthus, strabismus, ptosis; abnormal position or configuration of the ears; hypospadias; cryptorchidism; renal anomalies; abnormal dermatoglyphics and cutaneous syndactyly; cleft uvula and/or palate; and normal chromosomes. (6 refs.) - *E.F. MacGregor.*

Departments of Paediatrics and Child Health
University of Leeds
Leeds, England

935 DOEGE, THEODORE C., CAMPBELL, MARY M., BRYANT, JEAN S., & THULINE, HORACE C. Mental retardation and dermatoglyphics in a family with the oral-facial-digital syndrome. *American Journal of Diseases of Children*, 116(6):615-622, 1968.

MR and dermal patterns were studied in 4 affected and 4 unaffected female relatives in 2 generations of a large family with 17 females with the oral-facial-digital (OFD) syndrome among 85 births in 5 generations. The CA range of the females studied was 1-29 years. The affected patients were paired with the unaffected female sib closest in birth order or, in 1 case, with a first cousin. The IQs of 3 affected and 3 unaffected sisters in the fourth generation were 74 and 81, respectively, while those of 2 first cousins in the fifth generation were 17 and 98, respectively. In 3 of the 4 pairs, the affected female had a lower IQ, and the females with the lowest IQs also had the most severe OFD abnormalities. The syndrome is associated with the dermal pattern of whorls on the fingers. Two newborn females of an affected mother showed signs of the OFD syndrome including pug-nosed profile, cleft palate, cleft tongue, and partial or complete syndactyly of the fingers and/or toes. The OFD syndrome is probably inherited as a sex-linked dominant trait and is usually lethal in males. (23 refs.) - *M.G. Conant.*

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San Francisco, California 96272

936 BEISCHER, N.A., & FORTUNE, D.W. Double monsters. *Obstetrics and Gynecology*, 32(2):158-170, 1968.

Case studies, including photographs, illustrations, and radiographic pictures, of 2 dicephalic fetuses (1 female—birth-weight 3,100 gms; 1 male—birth-weight 2,025 gms) are presented. The female S was delivered by cesarean section at 36 weeks gestation to a 21-year-old multipara, and she lived for 30 minutes. Autopsy findings included: normal formation of both heads; a common subcutaneous heart located in the suprasternal area; an agonal systole; 2 spinal columns and completely fused adjoining ribs; 2 normal brains (wt—300 gms); a liver mass comprised of 2 fused livers; 2 gall bladders; 2 anuses separated by a tail-like appendage; and 1 umbilical cord bifurcated near the fetal surface of the placenta. The male S was delivered by forceps and was stillborn with one head separated from the body. Autopsy revealed similarities to the female S and differentiating factors which included: 3 deficiencies in the fused diaphragm; no dividing septum in the large atrial chamber; diaphragmatic hernias resulting from hypoplasia of the lungs; unity of the small intestine for the last 20 cm only; 1 single large intestine, anal canal, and anus; 1 adrenal gland (the only adrenal tissue found) capping each kidney; and absence of bifurcation of the umbilical cord. Birth rate of dicephalic and syncephalic fetuses (double monsters) is calculated to be 1:40,000. Unique characteristics presented in this report which should be of interest to obstetricians, pathologists, and embryologists are the tail-like appendage, the bifurcated umbilical cord, and the variety of other malformations in the thorax, abdomen, and genitalia.(15 refs.) - *V.R. Shaffer.*

Department of Obstetrics and Gynaecology
University of Melbourne
Parkville N. 2
Victoria, Australia

937 STRONG, WILLIAM B. Familial syndrome of right-sided aortic arch, mental deficiency, and facial dysmorphism. *Journal of Pediatrics*, 73(6):882-888, 1968.

Four case histories indicate a connection between MR, right-sided aorta, and facial dysmorphism which occurred in 2 successive generations, thereby suggesting a dominant genetic mutation with sex linkage. The right aortic arch and descending aorta were determined by a cardiac roentogenographic series with barium in the

esophagus. Laboratory studies and chromosomal analysis were normal. Facial abnormalities included: carious teeth; large, posteriorly rotated, symmetrical ears; broad forehead; small mouth with downturned corners, and nasal septum deviation. (2 refs.) - *V.G. Votano.*

Department of Pediatrics
Babies and Children's Hospital
University Circle
Cleveland, Ohio 44106

938 WILDERVANCK, L.S. A first-arch syndrome variant? *Lancet*, 2(7563): 350, 1968. (Letter)

The presence of perceptive deafness, micrognathy, microcephaly, large low-set ears, malformed teeth, microphthalmia, bilateral hydrophthalmos, and severe MR in a 15-year-old boy suggest that this case may represent a variant of the multiform "first-arch syndrome" or a new separate nosological entity. (No refs.) - *E.L. Rowan.*

Department of Human Genetics
State University
Groningen, The Netherlands

939 CROME, L. Brain warts. *Journal of Mental Deficiency Research*, 13(1):60-65, 1969.

Brain warts were noted at autopsy in a 3 1/2 year-old MR boy with growth failure, asymmetrical face and skull, and large, low-set ears. Brain warts are multiple submeningeal nodules upon the gyri, primarily in the frontal areas. Associated findings in this case were micrencephaly, localized areas of microgyria, and paraventricular nodules of ectopic gray matter. Previous reports have shown no consistent relation between the presence of brain warts and either microgyria or MR. Their origin remains speculative, but such warts may be due to arrested migration of neuroblasts. (5 refs.) - *E.L. Rowan.*

Queen Mary's Hospital for Children
Carshalton, Surrey, England

940 AASE, JON M., & SMITH, DAVID W. Dysmorphogenesis of joints, brain, and palate: A new dominantly inherited syndrome. *Journal of Pediatrics*, 73(4):606-609, 1968.

A new syndrome identified in a father and his 2 offspring is characterized in full expression by hydrocephalus, cleft palate, and severe joint contractures. The stillborn propositus displayed the Dandy-Walker anomaly, malformed pinnae, complete cleft palate, shortening and flexion contractures of all extremities, and bilateral dislocation of the hip. The fingertips showed a virtual absence of dermal ridge patterning. A sister of the propositus displayed the same abnormalities, but she survived for 6 weeks. The father has normal intelligence but a prominent forehead, bilateral ptosis, oculomotor palsy, deformed ears, and flexion contractures. The etiology of the syndrome appears to be an autosomal dominant gene with the father representing a fresh mutation. (1 ref.) - *E.L. Rowan.*

University of Washington School of Medicine
Seattle, Washington 98105

941 HOOK, ERNEST B. Asymmetric manifestations of an apparently new syndrome: Depressed and pitted skin, facial tumors, syndactyly, and other congenital defects. *Journal of Pediatrics*, 73(6):913-917, 1968.

A male patient is reported with bands of depressed hypopigmented skin, many small skin pits, lesions of the nipple, streaks of linear pigmentation, cryptorchidism, an apparent branchial cyst, polydactyly, and other congenital defects extending from head to foot. All but one of these defects were on the left side. This combination of defects seems to resemble that of focal dermal hypoplasia but is thought to represent a new syndrome since focal dermal hypoplasia has been reported almost exclusively in females. Focal dermal hypoplasia usually includes nail, tooth, and eye defects, and does not include skin pits and depressed bands of skin. The origin of the marked asymmetry may be due to the clonal origin of variant cells with unilateral effect and/or to the existence of a differential right-left teratogenic threshold. (9 refs.) - *M.G. Conant.*

University of Washington
Seattle, Washington

942 LEFEBVRE, G., & NUYTS, J.P. Le syndrome de Rubinstein-Taybi (Rubinstein-Taybi syndrome). *La Medecine Infantile*, 75(6):399-407, 1968.

This syndrome is characterized by thumb and great toe abnormalities, craniofacial dysmorphism, MR, statural retardation, and cryptorchidism in boys. The dermatoglyphics of the patient are very important for the diagnosis of this syndrome. Because of its very peculiar clinical symptomatology, this syndrome has found its autonomy within the large group of encephalopathies with complex dysmorphisms. The existence in the patients of original dermatoglyphic abnormalities contributes to the strengthening of the autonomy of this syndrome, although the pathogeny of the disorder has not been explained. (29 refs.) - *G. Pura.*

No address

943 RUBINSTEIN, J.H. A syndrome of broad thumbs and first toes, mental retardation, and characteristic facial features—A follow-up report. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Retardation*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 589-595.

Data are reviewed on 75 patients (39 males, 36 females; CA 2 days to 42 yrs) with a syndrome first described in 1963 by Taybi and Rubinstein. The most frequently observed clinical characteristics include MR, broad

terminal phalanges of the thumbs and first toes, height and head circumference below the fiftieth percentile, beaked or straight nose, broad nasal bridge, highly arched palate, apparent hypertelorism, antimongoloid slant of palpebral fissures, strabismus, and incomplete or delayed descent of testes in males. All showed motor, mental, language, and social retardation, but no metabolic or chromosomal anomalies were found. Family histories are unresolved in several cases of siblings, only one of whom was affected. (29 refs.) - *M.G. Conant.*

944 TAYBI, H. Broad thumbs and great toes, facial abnormalities, and mental retardation syndrome. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 596-599.

There are no pathognomonic roentgen findings for the diagnosis of the broad thumbs and great toes, facial abnormalities, and MR syndrome. Such a diagnosis is possible if broad terminal phalanges are observed, particularly in combination with angulation of the thumbs and/or great toes and/or duplication of the proximal or distal phalanges of the great toes. Other radiological findings include retarded skeletal maturation, microcrania, large foramen magnum, vertebral anomalies, sternal anomalies, and flared ilia. (19 refs.) - *M.G. Conant.*

945 COFFIN, G.S. Three retarded children with unusual face and hands: A variant of the wide-thumb syndrome? In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 600-605.

Three unrelated girls have some, but not all, of the characteristic features of the wide-thumb syndrome; however, similarities between symptoms in these 3 Ss and the symptoms of the wide-thumb syndrome suggest a common cause. The syndrome of congenital anomalies found in these 3 patients includes MR; down-slanted eyes; epicanthi; low ears; narrow palate; long nasal septum; moderate microcephaly; flat feet; and fingers and toes with short, deviated, terminal phalanges. Unlike the broad-thumb syndrome, these patients were lean and spastic and unable to walk well. Identification of a common cause of the wide-thumb syndrome and its variants will enable them to be studied as one disease. (No refs.) - *M.G. Conant.*

946 SMITH, G.F., & BERG. J.M. Dermatoglyphs in Rubinstein-Taybi syndrome. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 606-612.

Dermatoglyphic patterns of patients with the Rubinstein-Taybi syndrome (broad thumbs and first toes, facial abnormalities, and MR) were examined to ascertain their usefulness in delineating this syndrome. Thenar patterns were observed in 81% of the patients compared to 11.7% of the normal controls and a large pattern was typical. Each of 8 patients had a smaller total ridge count than the norm for his or her sex. Two dermal patterns in the hallucal area, one of which is very uncommon, were also observed. The proximity of increased dermal pattern intensity to the affected digits (thumb and first toe) suggests that this could be attributed to the direct action of one or more genes; however, much further work should be done. (29 refs.) - *M.G. Conant.*

947 TRUE, C.W., & RUBINSTEIN, J.H. Pathological findings in a case of the Rubinstein-Taybi syndrome. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967, Surrey, England, Michael Jackson Publishing, 1968, p. 613-614.

Pathological findings at autopsy are described for an 18-month-old male with the Rubinstein-Taybi syndrome. The brain and spinal cord showed many abnormalities, including complete absence of the corpus callosum and septum pellucidum, partial reduplication of the dentate gyri, and no apparent connection between the lateral and third ventricles. Microscopic examination of the cortex revealed the absence of large and medium-sized neurons with the remaining neurons excessively and randomly distributed. In other areas, neurons of normal size, shape, and distribution were seen. Myelin was absent or sparsely distributed in most areas, including the cerebral white matter, peduncles, pyramids, optic nerves, and afferent cerebellar nerves. Abnormalities in the formation of the limbic system were also noted. (29 refs.) - *M.G. Conant.*

948 NEUHAUSER, G. Pneumonencephalographic findings in the Rubinstein-Taybi syndrome. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 615-619.

Two boys (CA 4 and 6 yrs) and one girl (CA 4 yrs) showed the facies typical of the Rubinstein-Taybi syndrome, a micro-brachycephaly with frontal bulging; broad thumbs and first toes; retarded physical development; abnormalities of the cervical spine, teeth and feet; and hypotonicity. The karyotype and laboratory findings were normal. The 2 boys showed pneumoencephalographic changes which were consistent with a malformation of the corpus callosum. The children had IQs below 40, relatively good social adjustment, speech and language difficulties, and less affected motor abilities. The coincidence of facial anomalies and malformation of the brain suggests a common cause. (29 refs.) - *M.G. Conant.*

949 LOWRY, M.F. Rubinstein-Taybi syndrome. *Journal of the American Medical Association*, 206(12):2744, 1968. (Letter)

A premature male infant with feeding difficulties and respiratory infections had the classical features of the Rubinstein-Taybi syndrome. Psychomotor retardation (at 22 wks), characteristic facial appearance of beaked nose with wide bridge, and abnormalities of thumbs and halluces were present. (12 refs.) - *E.L. Rowan.*

Children's Hospital
Birmingham, England

950 BIXLER, DAVID, *CHRISTIAN, JOE C., & GORLIN, ROBERT J. Hypertelorism, microtia, and facial clefting: A newly described inherited syndrome. *American Journal of Diseases of Children*, 118(3):495-500, 1969.

Two sisters with a striking similarity of defects, the most characteristic of which are hypertelorism, microtia, and facial clefting, are thought to represent a new syndrome. Marked external and internal ear malformations; clefting of lip, palate, and nose; microcephaly; hypoplastic thenar eminences; ectopic kidneys; and developmental retardation are also present. Microcephaly supports a diagnosis of MR, but hearing difficulties prevent intelligence testing. On the mother's side there is a strong family history of congenital heart disease which may represent a separately transmitted defect or low penetrance and expressivity of the syndrome seen in the probands. This hypertelorism-microtia-clefting syndrome appears to be distinctly different from the median cleft face syndrome and the otopalato-digital syndrome. (5 refs.) - *E.L. Rowan.*

*Indiana University School of Medicine
Indianapolis, Indiana 46202

951 CARTER, CHARLES H., HOWARD, FRED H., & CONNOLLY, JOSEPHINE. Unilateral ichthyosiform erythroderma: Report of a case. *Clinical Pediatrics*, 7(10):605-606, 1968.

A female infant presented with gross body asymmetry (right side smaller than left), unilateral ichthrosiform erythroderma (red, rough, scaly skin), rudimentary limbs on the right side, and probable MR. Although this condition is considered an autosomal recessive chromosomal abnormality, the possibility of a teratogenic insult about the fourth week after fertilization cannot be ruled out. (4 refs.) - *E.L. Rowan.*

Sunland Hospital at Orlando
Orlando, Florida 32800

Gross brain disease (postnatal)

952 MELCHIOR, JOHANNES C., & CLAUSEN, JORGEN Metachromatic leukodystrophy in early childhood: Treatment with a diet deficient in vitamin A. *Acta Paediatrica Scandinavica*, 57(1):2-8, 1968.

The clinical, biochemical, and pathological findings in a family with 4 cases (3 suspected, 1 proven) of metachromatic leukodystrophy are described. The proven case was a female child with severe psychomotor retardation, loss of speech, and metachromatic deposits in the sural nerve and rectal tissue. Treatment with a vitamin A-deficient diet from 2.5-3 years of age did not change the clinical condition, probably because of the advanced state of disease. The polar lipid pattern in urinary sediment and the activities of arylsulfatase A and B in the urine were determined in the patient, in 9 members of her family, and in normal controls. Two predominating urinary glycolipid fractions, which decreased during low vitamin A intake, and absent arylsulfatase A activity, which did not change during the period of vitamin A deficiency, were observed in the patient. All the family members except one showed 2 predominating glycolipid fractions (controls showed none), and 6 of the family members showed low arylsulfatase A activity when compared to the controls. Vitamin A is necessary for the synthesis of sulfatides. (23 refs.) - *M.G. Conant.*

Department of Pediatrics—Rigshospitalet
Copenhagen, O., Denmark

953 AZIZ, HASAN, & PEARCE, JOHN. Peripheral neuropathy in metachromatic leucodystrophy. *British Medical Journal*, 5626(4):300, 1968.

An 18-month-old girl presented with a peripheral neuropathy confirmed by discrete motor activity, spontaneous fibrillation, and a reduction in motor-nerve conduction time. Brain biopsy was consistent with metachromatic leukodystrophy. Metachromatic granules also accumulate in Schwann cells of peripheral nerves, and the disturbance in the metabolism of the parent cell may cause disruption in myelin sheath production and consequent segmental demyelination. (8 refs.) - *E.L. Rowan.*

No Address

954 LIU, H. MEI. Ultrastructure of central nervous system lesions in metachromatic leukodystrophy with special reference to morphogenesis. *Journal of Neuropathology and Experimental Neurology*, 27(4):624-644, 1968.

Studies by light and electron microscopy of brain and spinal cord from a case of late infantile metachromatic leukodystrophy demonstrated the progressive pathological changes involved in the formation of the metachromatic sulfatide granules characteristic of this disorder. Earliest changes noted were in the oligodendroglia and myelinated nerve fibers where membraneous inclusions of a granular appearance occurred. The granular material in the intraglia lesions became crystallized into short angular or round masses with dense plates in a straight, curved, or concentric form or into longitudinal fiber bundles. Intraneurally, the lesions increased and became fusiform enlargements along nerve fibers. Macrophage phagocytosis of the pathological structures occurred extraneurally. The entire process resulted in the small, compact, multilaminated myelin figures which are the diagnostic sign used in light microscopy for this disorder. The basic defect in late infantile metachromatic leukodystrophy appears to be in the degeneration of the oligodendroglia. These cells form and maintain myelin, and their malfunction could result in the pathology of the myelin sheath. It is suggested that in this disorder, an inborn metabolic error causes an abnormal product to accumulate in the oligodendroglia which eventually results in the disappearance of these cells and ensuing myelin sheath breakdown. The complete chemical nature of the characteristic inclusions should have further elucidation. (38 refs.) - *K. Drossman.*

Section of Neuropathology
Department of Pathology
University of Chicago
Chicago, Illinois 60637

955 THULIN, BARBARA, McTAGGART, DAVID, & * NEUBUERGER, KARL T. Demyelinating leukodystrophy with total cortical cerebellar atrophy. *Archives of Neurology*, 18(2): 113-122, 1968.

A 3-year-old boy (birth-weight 5 lbs) was suspected at birth of having a progressive neurologic disorder. Opisthotonos, failure to thrive, lethargy, and spontaneous nystagmus were observed during the first week of life. The child showed growth and psychomotor retardation, microcephaly, aimless eye movements, and myoclonic seizures during the first year. In the last year of life, tonic and massive infantile spasms occurred daily and all spontaneous movements ceased. EEG findings revealed hypsarrhythmia. Pathological examination showed generalized brain atrophy, demyelination and sclerosis of white matter, severe cortical atrophy, and non-specific cortical neuron degeneration. The demyelinating process resembled Pelizaeus-Merzbacher disease. (20 refs.) - *M.G. Conant.*

*Department of Pathology
General Rose Memorial Hospital
1050 Clermont Street
Denver, Colorado 80220

956 GUAZZI, G.C., MARTIN, J.J., BRUCHER, J.M., TAPER, H.S., MACKEN, J., NEETENS, A., & VAN HAEGENBORGH, J. Sur l'importance de l'atteinte vasculaire et de la dystrophie gliale dans l'encephalomyelopathie necrosante de Leigh: Etude de deux familles et de trois observations anatomiques (Importance of vascular degeneration and glial dystrophy in Leigh's necrotizing encephalomyelopathy: Study of two families and of three anatomic cases). *Journal of the Neurological Sciences*, 7(2):357-379, 1968.

Postmortem anatomical and clinical studies of 3 cases of necrotizing encephalomyelopathy which occurred in 2 families revealed the autosomal recessive transmission of the disease. In one of these families, the parents were first cousins. The topography and structure of the lesions in the brain showed an association of the disease with a glio-vascular activation and a possible relation with infantile Gayet-Wernicke disease. A correlation is indicated between necrotizing encephalomyelopathy and the occurrence of primary lactic acidosis and of defects in the metabolism of pyruvic acid and α-keto acids. (31 refs.) - *G. Pura.*

Fondation Born-Bunge
Antwerp, Belgium

957 ROBINSON, N. Chemical changes in the spinal cord in Friedreich's ataxia and motor neurone disease. *Journal of Neurology, Neurosurgery and Psychiatry*, 31(4):330-333, 1968.

Chemical analysis of sections of spinal cord determined the lipid, proteolipid, protein, and amino acid content of affected and unaffected regions in 7 patients with Friedreich's ataxia or motor neuron disease and in 4 controls. Cholesterol levels and total phospholipids-phosphorus content were low in the affected lateral corticospinal and posterior tracts in Friedreich's ataxia. Both Friedreich's ataxia and motor neuron disease cases showed high soluble protein levels as the protein residue from proteolipid loss was retained. Free amino acid content showed low levels of aspartic acid, glutamic acid, and glutamine in both groups. Friedreich's ataxia and motor neuron disease differ genetically and clinopathologically, but the similar chemical findings suggest common secondary processes in breakdown without pinpointing the primary biochemical defects. (19 refs.) - *E.L. Rowan.*

Institute of Neurology
The National Hospital
Queen Square
London England

958 HUGHES, J. TREVOR, BROWNELL, BETTY, & HEWER, RICHARD L. The peripheral sensory pathway in Friedreich's ataxia: An examination by light and electron microscopy of the posterior nerve roots, posterior root ganglia, and peripheral sensory nerves in cases of Friedreich's ataxia. *Brain*, 91(Part IV):803-818, 1968.

Histological changes in the peripheral sensory pathway in Friedreich's ataxia were studied by using light microscopy in 18 necropsies and light and electron microscopy in 4 sural nerve biopsies. Neuron cell bodies

of the posterior root ganglia and the axons arising from these cell bodies showed degenerative changes resembling those observed in the posterior nerve roots and peripheral nerve trunks. There was severe depletion of the large myelinated fibers, loss of myelin tubes, and loss of large axons. The remaining nerve fiber population of these structures was thought to be numerous small-diameter unmyelinated fibers. Electron microscope studies on sural nerve biopsies confirmed these findings, and no evidence was shown of segmental demyelination. (10 refs.) - *M.G. Conant.*

Department of Neuropathology
Radcliffe Infirmary
Oxford, England

959 HEWER, RICHARD L. Study of fatal cases of Friedreich's ataxia. *British Medical Journal*, 3(5619):649-652, 1968.

The review of 82 fatal cases of Friedreich's ataxia revealed a high incidence of heart disease and diabetes mellitus in addition to the neurologic syndrome. The mean age at death was 36.6 years with an average duration of the disease of 23.9 years prior to death. Seventy-three percent of patients had cardiac symptoms during life, and 56% died in heart failure. Electrocardiographic examination of 12 of the 22 patients without cardiac symptomatology showed only 2 normals, so that there is ample evidence that the heart is probably always abnormal in Friedreich's ataxia. Diabetes mellitus was diagnosed in 23% of the patients, 4 of whom died in ketoacidosis. Although there is no effective treatment for Friedreich's ataxia, information about life expectancy and disease probability is essential to both the patient and his family. (8 refs.) - *E.L. Rowan.*

Department of Neurology
Radcliffe Infirmary
Oxford, England

960 HORNABROOK, R.W. Kuru—A subacute cerebellar degeneration: The natural history and clinical features. *Brain*, 91(Part I): 53-74, 1968.

Kuru is a fatal and progressive cerebellar degeneration indigenous to the people of the Eastern Central Highlands of New Guinea. A review of 214 cases revealed approximately 80% to be females, most of whom were of child-bearing age. The disease terminated fatally in from 4 to 24 months, and any patients who recovered from symptoms were found to have been misdiagnosed. Males had a more fulminating course which was usually complicated and probably hastened by a reactive depression. Initial symptoms were walking difficulty, tremulous legs, headache, and leg pain. Organic mental change and dementia were common in the terminal stages. Epidemiological investigations revealed no consistent pattern of illness. Genetic studies are difficult because the disease is so common that everyone has at least one close relative who has died from kuru. Although the diagnosis is clear, the etiology remains unknown. (21 refs.) - *E.L. Rowan.*

Wellington Hospital
New Zealand

961 AGUILAR, MARY JANE, KAMOSHITA, SHIGEHIKO, LANDING, BENJAMIN H., BODER, ELENA, & SEDGWICK, ROBERT P. Pathological observations in ataxia-telangiectasia: A report on five cases. *Journal of Neuropathology and Experimental Neurology*, 27(4):659-676, 1968.

Five cases (3 males, 2 females; CA 10 to 21 yrs at death) of ataxia telangiectasia (A-T) had consistent autopsy findings which included: cerebellar cortical atrophy; chronic respiratory disease; lymph system hypoplasia; hypoplasia of gonads and reproductive cells; malignant lymphoma; and inferior olive nuclei neuron degeneration. Some pathological changes rarely or never before reported such as: "ghost cells" in the spinal cord anterior horns; spinal cord posterior white column demyelination; aneuploidy; left ventricular hypertrophy; neuromelanosis and degeneration; satellite cell abnormalities of spinal ganglia; dentate nucleus neuron degeneration; neuroaxonal dystrophy in the tegmentum of the medulla oblongata; and occasional microglial nodules in brain stem and spinal cord were also found. The basic biochemical defect of A-T is still to be elucidated; however, an autosomal recessive genetic mode of transmission is reasonably certain, based on familial studies. The immunological incompetence and associated clinical symptoms suggest a thymic abnormality, and primary hypopituitarism may be of specific significance in this syndrome. (36 refs.) - *K. Drossman.*

Childrens Hospital of Los Angeles
Los Angeles, California 90027

962 MARTIN, LILIANE, & HARIGA, JACQUES. Oligophrenie grave avec amyotrophie chez deux freres dont l'un presente une poikilodermatomyosite avec alteration corneenne: Sa place dans les dystrophies neuro-cutanees (Severe oligophrenia with amyotrophy in two brothers, one of which shows a poikilodermatomyositis with corneous alteration: Its place in neurocutaneous dystrophies. *Journal de Genetique Humaine*, 16(3-4):71-82, 1967-1968.

Clinical observations of 2 SMR brothers (CA 6 and 14 yrs) who were affected with diffuse amyotrophy from the age of 4 years showed a simultaneous occurrence of a progressive wasting of muscles and Petges' poikilodermatomyositis in the older boy. This indicates that a dermatomyositis syndrome can arise within the scope of a heredodegenerative disease. (26 refs.) - *G. Pura.*

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Antwerp, Belgium

963 LAURENCE, K.M., & CAVANAGH, J.B. Progressive degeneration of the cerebral cortex in infancy. *Brain*, 91(Part II):261-280, 1968

Clinical and pathological features of cerebral cortical degeneration in 4 infants are described, and a fifth case is noted. The infants (from 3 families) appeared normal at birth, did not suffer any known birth trauma, and had no seizures before appearance of MR. The disease

appeared prior to 6 months of age and progressed rapidly until the patient became spastic, stopped growing, and developed decerebrate rigidity. A familial incidence occurred in 4 of the cases. Pathologic examination of the brains showed severe ulegyria and uniformly severe destruction of the neurons in the cerebral cortex, while the brain stem, cerebellum, and spinal cord were relatively intact. This disease may represent a distinct entity among cases of progressive cerebral degeneration. An anoxic or traumatic etiology is not probable; however, an environmental infective agent or a metabolic anomaly cannot be discounted. (22 refs.) - *M.G. Conant.*

Welsh National School of Medicine
Llandough Hospital
Penarth, Glamorgan, Wales

964 LEVINE, ARTHUR S., LEMIEUX, BERNARD, BRUNNING, RICHARD, WHITE, JAMES G., SHARP, HARVEY L., STADLAN, EMANUEL, & *KRIVIT, WILLIAM. Ceroid accumulation in a patient with progressive neurological disease. *Pediatrics*, 42(3):483-491, 1968.

Clinical and laboratory examination of a well-nourished, 22-month-old female, admitted because of gait disturbance and seizures, revealed ceroid granules in a bone marrow aspirate, but no other abnormalities. At age 30 months, neurological deterioration had progressed (frequent myoclonic seizures and optic atrophy), and ceroid pigment was present in the cytoplasm of neurones, astrocytes, and macrophages of the brain biopsy and in the renal, hepatic, and intestinal tissue. Lipid metabolism (studied by measuring serum vitamin E levels, serum lipoproteins, lipid profile, and fat absorption) was normal. The patient died at 42 months. The biochemical nature of the disease process is unknown. (36 refs.) - *M.G. Conant.*

*Box 284
Minneapolis, Minnesota 55455

965 SEIL, FREDERICK J., SCHOCHET, SYDNEY S., JR., & *EARLE, KENNETH M. Alexander's disease in an adult: Report of a case. *Archives of Neurology*, 19(5):494-502, 1968.

Although Alexander's disease is usually associated with progressive MR and enlargement of the head in children, a third adult case is reported in a 47-year-old man whose symptoms began at age 32. The clinical aspects—the stuttering onset, steady slow progression of cerebellar dysfunction, disorders of extraocular muscle movement, and spasticity—were clinically indistinguishable from multiple sclerosis. At autopsy, however, there were large bifrontal cavitations and microscopic cavities in basal ganglia, dentate nuclei, cerebral peduncles, and spinal cord. Rosenthal fibers and corpora amylacea were found throughout the white and gray matter and were especially prominent subpially, subependymally, and perivascularly. Axonal destruction and secondary demyelination were also observed. (13 refs.) - *E.L. Rowan.*

*Laboratory of Pathology at AFIP
Washington, D.C. 20305

966 GIBBS, C.J., JR., & GAJDUSEK, D.C. Infection as the etiology of spongiform encephalopathy (Creutzfeldt-Jakob Disease). *Science*, 165(3897):1023-1025, 1968.

Fatal spongiform encephalopathy occurred in 4 chimpanzees 12 to 14 months after inoculation with suspensions of brain from 4 patients, respectively. Chimpanzee to chimpanzee transmission was effected without reduction in incubation period. Retransmission of the disease to a second chimpanzee occurred when an inoculum that had been stored at -70°C for over 2 years was used. (7 refs.) - *Journal abstract.*

National Institute of Neurological Diseases and Stroke
Bethesda, Maryland 20014

967 COHEN, HERBERT J., MOLNAR, GABRIELLA E., & TAFT, LAWRENCE T. The genetic relationship of progressive muscular dystrophy (Duchenne type) and mental retardation. *Developmental Medicine and Child Neurology*, 10(6):754-765, 1968.

A clinical observation that families with progressive muscular dystrophy (PMD) of the Duchenne type show concordance with respect to MR was validated in the study of 221 males, 44 of whom had MR or IQ scores below 80. This 20.9% incidence of MR is significantly higher than the population estimate of 3%. The range of the IQ scores for the dystrophic group (mean IQ 86.1) was displaced into a lower range than expected in a normal population. Cases were distributed among 135 families, 39 (28.9%) of which were multiple case families. In 37 of these families (94.9% concordance) either all dystrophic members also had MR or all were of normal intelligence. The occurrence of PMD in 133 of 229 (58.1%) of all male progeny and typical pedigree patterns are compatible with a sex-linked recessive trait. The mental subnormality seen in PMD appears to have an organic and probable genetic basis, and although the specific defect is as yet undiscovered, this concordance suggests the possibility of gene linkage. (25 refs.) - *E.L. Rowan.*

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Bronx, New York 10461

968 DRACHMAN, DAVID A. Ophthalmoplegia plus: The neurodegenerative disorders associated with progressive external ophthalmoplegia. *Archives of Neurology*, 18(6):654-674, 1968.

Progressive external ophthalmoplegia (PEO) was found in 4 Ss (1 with a WAIS IQ of 71) in association with other symptoms, some of which were indicative of a degenerative disease process. All Ss exhibited ptosis, external ophthalmoplegia, optic atrophy, hearing loss, vestibular function abnormality, dysphagia, dysphonia, hyporeflexia, increased cerebrosphinal fluid protein, electroencephalographic abnormalities, and cardiac abnormalities. Findings in one or more patients included proximal myopathy, retinal pigmentary degeneration, peripheral neuropathy, corticospinal and cerebellar

signs, organic mental changes, small stature, decreased steroid excretion, positive family history, spine anomalies, proptosis, ocular muscle atrophy, myopathic abnormalities, slowed nerve conductive velocity, and neuropathic changes in limb muscle biopsy. Because of the variability and inconsistency of the symptoms found with PEO, numerous diagnostic possibilities exist, and this has led to considerable nosological confusion. The disease symptoms could be similar clinical manifestations from diverse etiologies, or conversely, diverse clinical manifestations due to a single etiology. In spite of the lack of knowledge about the etiology, confusion over classification, it is evident that PEO is a degenerative or abiotrophic disease. (83 refs.) - *E. Gaer.*

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969 Case records of the Massachusetts General Hospital: Case 41-1968. *New England Journal of Medicine*, 279(15): 819-828, 1968.

A 30-year old diabetic MR female hospitalized in a comatose state expired after a 2-week course of multiple physical complications. She was found at autopsy to have ischemic infarction of many organs with focal necrosis and secondary bacterial invasion. The patient was initially diagnosed as suffering from diabetic ketoacidosis. On the second day of hospitalization, she developed shock and a cardiac arrest, but was revived. During the next 11 days she remained relatively unresponsive, and she ultimately developed signs of septicemia. On autopsy, large areas of the colon were found to be dilated with thin walls, intramural gas, and necrotic foci. An hepatic flexure perforation and hemorrhagic foci in the transverse and descending colon and rectum were also found. The lungs had areas of hemorrhagic necrosis adjacent to foci of bronchopneumonia. Also present were small abcesses and bilateral, hemorrhagic pleural effusions. Cerebral lesions consisted of multiple bland or hemorrhagic infarctions, most numerous in areas supplied by the parietal and occipital branches of the right middle cerebral artery. The infarctions as a whole appear to be due to the initial shock secondary to the ketoacidosis with the bacterial invasion secondarily arising from the colon but sparing the uterus and brain. The cerebral findings would indicate that the length and diameter of the artery determines the location of cerebral infarctions which result from systemic shock. (13 refs.) - *E. Gaer.*

Psycho-environmental

970 KENNEDY, WALLACE A. Cultural deprivation: Its role in central nervous system functioning. In: Khanna, J.L., ed. ***Brain Damage and Mental Retardation: A Psychological Evaluation.*** Springfield, Illinois, Charles C. Thomas, 1968, Chapter 5, p. 110-120.

Culturally deprived infants have a higher probability of neurological deficits than average children because of the multitude of adverse factors associated with their prenatal and postnatal development. A relationship exists among maternal health, environmental deprivation, and neurological growth of infants during the prenatal period. A normative study of the motor skills, intelligence, and achievement of 1,800 culturally deprived, Southern Negro elementary school children (CA 5 yrs 6 mos to 16 yrs) in 1960-1961 revealed a positive correlation between socioeconomic level and achievement and intellectual variables. The Stanford-Binet (S-B), California Achievement Test, and Goodenough Draw-A-Man Test demonstrated a relationship between low socioeconomic level and increased deficit. A reevaluation of 1/5 of the sample in 1965 disclosed that, although IQs remained substantially the same, Ss tended to fall behind academically. The entire population had a great deal of difficulty on visual-motor tasks and a high frequency of organic signs on the S-B and Draw-A-Man Tests. These findings may be due to early CNS damage related to poor prenatal and postnatal care, poor medical care, or nutritional deficit; or they may be due to the fact that these tests of CNS function are dependent on early experience and early practice. Considerations of reversibility should be based on the knowledge that some functional defects cannot be reversed, some organic defects can be reversed, some functional defects can become organic via DNA modification, and atrophy may occur during critical periods. (10 refs.) - *J. K. Wyatt.*

971 HEBER, RICK. The role of environmental variables in the etiology of cultural-familial mental retardation. In: Richards, B.W., ed. ***Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency***, held Montpellier, France, September 12-20, 1967. Surrey, England Michael Jackson Publishing, 1968, p. 456-465.

There is a definite correlation between intelligence and certain demographic, racial, and family variables, including family size, chronological age of child, maternal intelligence, and race. Of 88 mothers in a slum area of Milwaukee, Wisconsin, the 45.4% who had IQs below 80 accounted for 78.2% of the children with IQs below 80. Research based on the idea that early social environment has an important and relatively permanent

effect on intellectual development is proposed. The approach is based on prevention of the intellectual defect through early manipulation of the environment rather than attempted correction by later manipulation of an adverse environment. Infants from high-risk slum areas will be stimulated at least 20 hours weekly starting at birth; if they show normal intelligence at school age, it will be presumed that it is possible to prevent MR in this high-risk group. Vocational habilitation of the retarded mothers will also be incorporated into the plan. (No refs.) - *M.G. Conant.*

972 RENDON, ROBERTO. El ambiente fisico y psicologico como factor en el retraso mental (Physical and psychological environment as a factor in mental retardation). *Boletin Instituto Neurologico de Guatemala*, Number 20 (February):2, 1968.

The psychobiological development of MR children and their behavior, learning capacity, and later adaptation into society depend on organic factors in about 25% of the cases and on psychological and socio-environmental factors in the remainder. The evaluation of each individual requires the concurrence of several disciplines to obtain an exact diagnosis and provide the proper treatment. Discussed are: the relation between the incidence of MR and mother's age, emotional state, and use of drugs and psychotropic agents during her pregnancy; premature birth; neonatal asphyxia; birth trauma; kernicterus; postnatal infection; and psychological environment. The advantages of direct care of MR children by their mothers as compared to care in institutions are emphasized, as well as the importance of multi-sensorial stimulation (contact with many persons), the educational level of the father, and the socioeconomic condition of the family. (21 refs.) - *G. Pura.*

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973 MACKIE, ROMAINE P. Functional handicaps among school children due to cultural or economic deprivation. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 831-834.

The influence of a deprived environment on functionally handicapped children and the possibility of educating the EMR within a diversified and stimulating area of general education are discussed. The handicapping effects of language barriers, poverty, deprivation in the home environment, racial discrimination, and cultural factors may cause children to function as MR although their ability is not so limited. Programs with emphasis on language development and communication skills may be useful. Saturation schools, which offer diversity and enrichment in the school program to provide an appropriate education for each child, may offer opportunities for functionally handicapped children within a general program. (14 refs.) - *M.G. Conant.*

974 ALBIZU-MIRANDA, C., & MATLIN, N. Psychosocial aspects of cultural deprivation. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 466-474.

Field studies in Puerto Rico indicate that the retardation rate in children is 10% and in adults is almost 30%. This high rate of retardation is not related to cultural or biological differences but appears to be related to economic development, age, and self-concept. The spectrum of society (from the traditional folk society to the modern industrial society) which exists in Puerto Rico is associated with social and economic differences and with lower intelligence levels in the traditional areas of society. Differences in intelligence with age are related to quality of teaching, environmental stimulation, and lack of motivation. In addition, there is a positive correlation between retardation rate and low self-image. (No refs.) - *M.G. Conant.*

975 STANTON, H.R. Cultural deprivation, economic development and social mobility. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 835-836.

Moderate MR (IQ 40-80) may be caused by cultural deprivation due to economics or educational institutions and/or to the fact that culturally deprived persons interact chiefly with one another. In an economically developed society, only 1% of adults may be in this range; however, 30% of the adults in less developed economies may be in this group. There is a high correlation (.80-.90) between the average educational level and the average intelligence level of a group. The problem of cultural deprivation is seen as one of inequality of opportunity rather than as one of unfitness for education and occupational roles. The threshold or eligibility requirements for many jobs are too high for many low IQ applicants, although the core requirements may be surprisingly low and within the capability of the applicants. (No refs.) - *M.G. Conant.*

976 GREGG, GRACE S. Physician, child-abuse reporting laws, and injured child: Psychosocial anatomy of childhood trauma. *Clinical Pediatrics*, 7(12):720-725, 1968.

Many cases of child abuse have escaped public notice either because of personal reasons of the attending physician or elusive diagnostic criteria; however, by law, a physician is obligated to report suspicions of abuse. Abuse in found along a continuum from single or repeated "accidents" to chronic neglect and failure to thrive. The physician must be alert to the type and extent of injury and the quality of child care permitting such injury to occur. Observations of family dynamics and parent-child interaction are essential. The physician may be faced with the difficult decision to confront the parents and report the matter to an appropriate agency,

but the alternatives are the sequelae of prolonged abuse: disturbed intellectual and emotional development; physical defects; and even death. A high index of suspicion of abuse requires hospitalization as a social if not medical emergency. Careful observation and physical examination which confirm abuse should be followed by assessment of the parents and appropriate referral to child protective agencies and legal authorities. (13 refs.) - *E.L. Rowan.*

Children's Hospital of Pittsburgh
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977 GLASER, HELEN H., HEAGARTY, MARGARET C., BULLARD, DEXTER M., JR., & PIVCHIK, ELIZABETH C. Physical and psychological development of children with early failure to thrive. *Journal of Pediatrics*, 73(5):690-698, 1968.

Forty children were reevaluated an average of 40.8 months after initial hospitalization with early failure to thrive for which no organic etiology had been discovered. Follow-up revealed no consistent findings, as 42.5% were still below the third percentile in height and/or weight. Eleven showed some psychiatric disturbance, and approximately 1/3 of those in school were experiencing some difficulty with the work; 6 were MR. Sixteen families were judged to be unstable, although most were together as a unit with father gainfully employed. One-third of the sample showed no physical, emotional, or psychological abnormality, and all but one of these families was judged to be stable. The complicated interaction between family stability, environment, and patient development produces such varied sequelae to failure to thrive, that the usually unrevealing yet extensive diagnostic workup and prolonged hospitalization are of questionable validity. (27 refs.) - *E.L. Rowan.*

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978 GRAHAM, PHILIP, & RUTTER, MICHAEL. Organic brain dysfunction and child psychiatric disorder. *British Medical Journal*, 3(5620):695-700, 1968.

All children with epilepsy or cerebral palsy and other lesions above the brain stem were identified by a process of multiple screening and individual examination of those 11,865 between 5 and 14 years old attending school on the Isle of Wight. Thirty-four percent of those neuro-epileptic children had psychiatric problems, whereas only 11% of children with chronic physical conditions not involving the brain (such as asthma and heart disease) and 7% of the general population of children had such problems. Brain dysfunction was not associated with any specific psychiatric syndrome; neuroses and antisocial disorders manifested by motor, cognitive, and aggressive abnormalities in school were most common in all groups. The high rate of psychiatric disorder in neuro-epileptic children appears to be due to the presence of organic brain dysfunction rather than to a physical handicap; however, intellectual (MR), educational, familial, and socioeconomic factors all interact in the development of such a disorder. (39refs.) - *E.L. Rowan.*

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MEDICAL ASPECTS—CONVULSIVE DISORDERS

979 BJERRE, INGRID, & CORELIUS, EIVOR. Benign familial neonatal convulsions. *Acta Paediatrica Scandinavica*, 57(6):557-561, 1968.

Neonatal convulsions occurred in 14 members of a family over 5 generations, but subsequent psychomotor development was normal in all cases. The etiology of this pattern of generalized seizures and periods of cyanosis beginning on the third day of life could not be determined, and the episodes did not respond to usual anticonvulsant medication. Convulsions were not noted after 3 weeks, but there was a tendency toward febrile convulsions later in childhood. EEGs were normal except during ictal and post-ictal periods. The family pedigree is consistent with an autosomal dominant hereditary disorder. Whereas most neonatal seizures are associated with brain damage or metabolic dysfunction which later produces brain damage, members of this family seem to have developed normally. (11 refs.) - *E.L. Rowan.*

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980 DOOSE, H., GERKEN, H., & VOLZKE, E. Genetics of centrencephalic epilepsy in childhood. *Epilepsia*, 9(2):107-115, 1968.

An investigation of the genetics of centrencephalic epilepsy EEG patterns in 161 siblings of epileptic children and in 145 control children showed that

abnormal ϕ rhythms (bilaterally synchronous 4-7/sec irregular spike-and-waves) were found in 35% of 2- to 7-year-old siblings and in 54% of 2- to 4-year-old siblings of patients. In control Ss, the figures were 11% and 12%, respectively ($P<0.0005$). Spike-and-waves were significantly more common in the patient siblings (7.7%) than in controls (0.8%). ϕ Rhythms can be identified only in 2- to 7-year-olds, and these rhythms are correlated with age; above age 7 years, they cannot be distinguished from normal background activity. Abnormal ϕ EEG patterns signify a genetically controlled susceptibility to centrencephalic epilepsy. An autosomal dominant mode of transmission is probable. (29 refs.) - *V. G. Votano.*

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981 U.S. HEALTH, EDUCATION AND WELFARE DEPARTMENT. *The Clinical Neurophysiology of Epilepsy: A Survey of Current Research.* Wilder, Joe. Washington, D.C., Superintendent of Documents, U. S. Government Printing Office, 1968, 46 p., $0.40. (National Institute of Neurological Diseases and Blindness, Monograph Series, Number 8.)

A survey of electrophysiologic research in the investigation of epilepsy was based on an extensive review of the biomedical literature, a study of ongoing research proposals and reports, and on-site visits to clinical laboratories within the United States and Canada. Research interests are categorized in terms of depth electrode studies, computer technology, evoked response studies, and EEG studies; however, most significant investigation cuts across all these areas and interaction among researchers is essential if major strides are to be made. Animal models are used in studies of basic processes and mechanisms, while human material is used for the evaluation of systemic function and clinical phenomena. The separation of evoked responses from background material and multichannel tape recordings, human microelectrode studies, stereoencephalography, and large EEG surveys, require computer technology for the analysis of data. It is essential that clinical investigators become familiar with computer programing. Physiologists, pharmacologists, neuropathologists, and all clinical investigators interested in neurophysiologic research in epilepsy will find this monograph both timely and informative. (250 refs.) - *E.L. Rowan.*

CONTENTS: Depth Electrode Studies; Evoked Response Studies; Application of Computer Technology to Data Collection; Electroencephalographic Studies.

982 POSER, CHARLES M. Epilepsy and the primary physician. *General Practitioner*, 37(3):104-112, 1968.

Most convulsive disorders can be properly diagnosed and managed by the primary physician (family physician, pediatrician, or internist). A therapeutically oriented classification of convulsive disorders is established for use by such a physician. Most patients with convulsive disorders have grand mal seizures which include generalized, fragmentary (abortive or incomplete), and focal seizures. The drug of choice for grand mal in children is phenobarbital and in adults is a combination of phenobarbital and diphenylhydantoin. True petit mal seizures begin in childhood and should be treated with one of the succinimides or oxazolidinediones. Treatment of akinetic seizures and infantile spasms is complicated and is best left to the neurologist. (No refs.) - *M.G. Conant.*

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983 HINTON, G.G., & KNIGHTS, R.M. Neurological and psychological characteristics of 100 children with seizures. In: Richards, B. W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 351-356.

The brain dysfunction of 100 children (CA 4-17 yrs) with seizures was assessed by an extensive battery of psychological tests which sampled abilities in abstract reasoning, motor control, sensory, verbal, and performance areas. Classification of the children as to type of seizure showed that 4 had classical petit mal, while 38 had atypical petit mal or minor motor seizures which were often associated with learning or behavioral problems. The children showed lower scores, relative to normal children, in all areas of testing, especially in motor speed, coordination, abstract reasoning, and language skills. Behavioral or school problems were present in 75 children. On the basis of the test results, training recommendations can be made for each specific epileptic child. (No refs.) - *M.G. Conant.*

984 KUGLER, JOHANN. Paroxysmal and background activities in long-term studies: Their prognostic value. In: Kellaway, Peter, & Petersen, Ingemar. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, p. 189-196.

Electroencephalographic findings on 82 epileptic children were correlated with age of first attack, seizure type, and treatment in order to select criteria which could be used in prognostic evaluation. Ss were studied for approximately 7 years; all had paroxysmal epilepsy with recurring seizures, were first examined before their fourteenth birthday, and had clinical data which suggested intrauterine, perinatal, or early postnatal damage. Prognoses were favorable for 27 (33%) and unfavorable for 55 (67%) of the patients. The most significant factor in a favorable prognosis appeared to be a well-developed background activity consistent with the S's CA, and poor prognosis was more commonly found when persistent focal abnormalities existed. Generalized spike-and-wave patterns could not be used in prognosis. Focal anomalies showed a tendency to shift with age from posterior to anterior cranial regions, and in unfavorable cases, were caused by lesions which were secondary to, or resulting from the seizures themselves. The earlier a clinical examination is given, the more likely it is that those children will receive adequate treatment. (13 refs.) - *K. Drossman.*

985 ZEMSKAYA, A.G. EEG and surgical treatment of focal epilepsy in children. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, p. 239-248.

Of 173 children with focal epilepsy which had remained unresponsive to medicine, 79 were chosen for surgery. Repeat EEGs and electrocortiographic (ECoG) records were used to locate the epileptic lesion and surgery was done with the aid of continuous electrophysiology recordings. All 79 Ss had localized abnormal epileptiform bioelectrical activity, and in 78 of these Ss, widespread morphological abnormalities were found at surgery. A substantial decrease in epileptiform activity was accomplished in 49 patients, in 9 there was some improvement, in 5 slow waves appeared in the area of surgical resection, and in 7 complete surgical removal was not possible. The use of ECoG is recommended as an important tool in deciding whether to surgically intervene because the ECoG can differentiate gross morphological changes from the main source of epileptogenic activity, and it can be used in the stage-by-stage removal of the primary focus. (1 ref.) - *K. Drossman.*

986 LUNDERVOLD, ARNE. The prognostic value of EEG in children with epilepsy. In: Kellaway, Peter, & Petersen, Ingemar, eds. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, p. 249-256.

A longitudinal study (11 to 21 yrs) of 78 epileptic children (43 boys; 35 girls) who had had pneumonencephalographic recordings prior to 1955 and who were now past puberty was conducted to evaluate the prognostic value of EEGs. Sixty-four percent of the Ss were seizure-free within a period of 10 years, 15% were significantly improved, and 21% were unchanged. Severe psychiatric symptoms developed in 4 Ss in the seizure-free group, in 2 Ss in the improved group, in 3 Ss in the unchanged group, and in 3 Ss in a deteriorating group. Mental conditions in these 12 patients had deteriorated to a point where they had to be institutionalized, yet clinically, their epilepsy had improved. Perhaps deterioration occurs because some abnormally reacting nerve cells die and become electrically inactive, thus giving a less abnormal EEG in spite of progressive brain atrophy. It is important, then, not to rely solely on a single examination, or on EEGs alone. Prognosis is more likely to be accurate if repeated physiological, anatomical, and clinical examinations are given concurrently. (4 refs.) - *K. Drossman.*

987 GASTAUT, H. A physiopathogenic study of reflex anoxic cerebral seizures in children (syncopes, sobbing spasms, and breathholding spells). In: Kellaway, Peter, & Petersen, Ingemar. *Clinical Electroencephalography of Children.* New York, New York, Grune & Stratton, 1968, p. 257-274.

One hundred and ninety-nine children (CA 6 mos to 5 yrs) were studied by simultaneous recordings of EEG, EKG, and pneumoencephalograms during episodes of reflex anoxic cerebral seizures. Anoxic seizures were induced 25 times by ocular compression or by pinching and were classified as either "white" syncopes or "blue" syncopes. Two varieties of white syncope, "precocious" (which follows ocular compression immediately and has characteristic EKG, EEG, and clinical aspects) and "retarded" (which follows stimulation after a latency period) occur and are caused by cerebral ischemia due secondarily to cardiac inhibition. "Blue" syncope is accompanied by cyanosis which gives the child a characteristic blue appearance. This type of syncope is caused by asphyxia due to sobbing evoked by pain, emotion, or anger. A third type of syncope the "isochemo-asphyxial" syncope is caused by breath-holding and is also accompanied by cyanosis. In this third type, cerebral ischemia from reflex bradycardia augments brain ischemia from transient cardiac insufficiency. Differential diagnosis is based on the latency period in relation to the stimulus, the existence of sobbing or breath-holding, and the presence of pronounced cyanosis. It is suggested that anoxic cerebral seizures should be considered as important as epilepsy in the etiology of convulsions in infants. (8 refs.) - *K. Drossman.*

988 SERVIT, Z. *Comparative and Cellular Pathophysiology of Epilepsy.* Proceedings of a Symposium held in Liblice near Prague, September 20-24, 1965. Amsterdam, The Netherlands, Excerpta Medical Foundation, International Congress Series, No. 124, 1966, 375 p. $25.00.

A symposium which focused on comparative and cellular pathophysiology of epilepsy is presented. Twenty-seven participants from 7 different countries discussed applied and theoretical neurophysiological research on epilepsy. Four illustrated and heavily documented papers are grouped in the general topic of cellular pathophysiology and are directed toward discussion of the epileptic neuron. Nine papers relate to the comparative pathophysiology of paroxysmal EEG and include data on animals and man. The role of different structures including the midbrain reticular formation, thalamus, and cortex in seizure dissemination is described with data primarily from animal experimentation. Five studies on audiogenic epilepsy in mice, rabbits, and rats are presented. The major conclusions of the symposium are summarized with special reference to critical problem areas. This book should be of interest to neurologists, physiologists, and other professionals in the field of epilepsy. (599 refs.) - *B. Bradley.*

CONTENTS: Comparative and Cellular Pathology as Method of Research in the Pathogenesis of Epilepsy; Cellular Pathophysiology, the Epileptic Neuron; Comparative Pathophysiology of the Paroxysmal EEG; Role of Different Structures in Seizure Dissemination. The Epileptogenic Focus. Comparative Aspects; Audiogenic Epilepsy in Rats, Mice and Rabbits.

989 FLOR-HENRY, P. Schizophrenic-like reactions and affective psychoses associated with temporal lobe epilepsy: Etiological factors. *American Journal of Psychiatry,* 126(3):400-404, 1969.

A comparison of 50 temporal lobe epileptics with psychotic manifestations and 50 temporal lobe epileptics without such symptoms revealed that schizophrenia-like psychosis (chronic hallucinatory

paranoia) is associated with epilepsy lateralized to or involving the dominant hemisphere. Psychotics had a lower incidence of psychomotor and psychosensory attacks, and if present, these attacks were infrequent. This group also had less frequent ictal manifestations of all types, although the incidence of generalized seizures was the same in both groups. It appears that epilepsy and psychosis are parallel but antithetical manifestations of the same under- lying neuronal disorganization of the temporal-limbic system, and seizures in this disturbed system are "antischizophrenic." Structural brain damage correlates only with chronicity of the epilepsy. (10 refs.) - *E.L. Rowan.*

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990 DELAMONICA, ENRIQUE A. Suppression-burst activity (A case report). *Diseases of the Nervous System*, 29(3):195-197, 1968.

An 11-year-old male SMR who had had seizure activity since 3 months of age was noted to have frequent periods of lethargy. EEGs performed after administration of 100 mg sodium secobarbital (Seconal) for sedation were characterized by numerous irregular periods of marked electrical activity depression. The suppression-bursts lasted from 3 to 10 seconds. Although a complete awake tracing could not be obtained, short periods of relative depression were noted. This pattern is produced in animal experiments by lesions in the basal diencephalon and surgical undercutting in humans. Although not commonly found, the pattern may be seen in various human pathological conditions such as encephalitis, cerebral tumors, hypophysectomy, convulsive disorders, degenerative encephalopathy, and MR. It may be a physiologic finding in newborns and prematures or observed in deep anesthesia. Recurrent inactivation of the brain-stem pathways is proposed as a mechanism. (15 refs.) - *W. Asher.*

Anchorena 1872
Buenos Aires, Argentina

991 DAM, MOGENS, & MOLLER, JORN ENGEL. Myoclonus epilepsy. *Acta Neurologica Scandinavica*, 44(5):596-611, 1968.

Clinical-pathological investigation of 7 patients with myoclonus epilepsy showed a consistent pattern of seizures of increasing frequency concomitantly with dementia. The onset of myoclonus was preceded by other seizure patterns and occurred before the age of 20 in 6 of the cases. Five Ss showed the classic EEG picture of a slow rhythm interrupted by occasional slow spike-wave complexes. Characteristic cerebellar and brain-stem degeneration was present in all cases, and 4 cases also had cerebral atrophy. Six of the cases showed malignant progression and a familial pattern in the classic sense while 2 of these showed pathological features of amaurotic idiocy. Myoclonus epilepsy is a syndrome caused by several different neuronal diseases which produce a similar pattern of degeneration. (25 refs.) - *E.L. Rowan.*

University Hospital
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992 MATTHEWS, W.B., HOWELL, D.A., & STEVENS, D.L. Progressive myoclonus epilepsy without Lafora bodies. *Journal of Neurology, Neurosurgery and Psychiatry*, 32(2):116-122, 1969.

Progressive myoclonic epilepsy is a syndrome of frequent bilateral myoclonus, recurrent major fits, progressive ataxia, dementia, and muscle atrophy. The age of onset is usually between 10 and 17, and the duration is 2 to 10 years. The pattern is suggestive of a recessive trait with frequent parental consanguinity and multiple cases in a sibship. The existence of an underlying metabolic defect is suggested by the presence of characteristic cerebral inclusion bodies (Lafora bodies). A girl who became symptomatic at age 11 and died at 18 showed the clinical syndrome including diffuse spike discharges on the EEG. Necropsy showed an absence of Purkinje cells and no Lafora bodies were demonstrated. A younger sister of this patient has major fits, myoclonic jerks, and EEG spiking and another sister has only the EEG changes. This and other cases of progressive myoclonus epilepsy without Lafora bodies continue to cause confusion as to the etiology of the disorder. (40 refs.) - *E.L. Rowan.*

Department of Neurology
Manchester Royal Infirmary
Manchester, England

993 WHISLER, K.E., TEWS, J.K., & STONE, W.E. Cerebral amino acids and lipids in drug-induced status epilepticus. *Journal of Neurochemistry*, 15(3):215-220, 1968.

An analysis of dogs with drug-induced status epilepticus was made to determine changes in cerebral amino acids and brain lipid fractions. The convulsant bemegride was also evaluated. Adult male dogs were deprived of food for a period of 18-20 hours; then they were administered repeated doses of pentylenetetrazol to sustain status epilepticus for 30-40 minutes. Significant increases were found in cerebral levels of 11 amino acids at the end of the status epilepticus period in these dogs. Status epilepticus produced a large increase of lactic acid in the brain. A large decrease was determined in the ganglioside fraction (52%) as well as a decrease in a fraction involving the lecithins and sphingomyelins; however, the cephalin, cerebroside-sulphatide and cholesterol fractions were not modified. Administration of bemegride resulted in smaller changes than those obtained with pentylenetetrazol. (36 refs.) - *B. Bradley.*

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994 MATHAI, K.V., DUNN, D.P., KURLAND, L.T., & REEDER, F.A. Convulsive disorders in the Mariana Islands. *Epilepsia*, 9(2):77-85, 1968.

Because the incidence of amyotrophic lateral sclerosis and parkinsonism-dementia complex is extraordinarily high in the Mariana Islands, a survey of 6,967 persons in these islands was made to determine whether other neurological disorders were also extremely high. A house-to-house survey was conducted in 3 villages on Guam and in 7 of 10 communities on Saipan. A medical questionnaire was completed by the Ss or their parents

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for at least 95% of the population. In addition, Ss with suspicious or abnormal findings on physical examination were examined by a neurologist. A positive history of convulsive disorder was obtained for 214 Ss. The prevalence rate for afebrile seizures was 3.4/1,000 population, and the average annual incidence was 0.3/1,000. These rates are no higher than rates found in Western communities. (9 refs.) - *M. Drossman.*

Christian Medical College
Vellore, India

995 BAILEY, DAVID W., & FENICHEL, GERALD M. The treatment of prolonged seizure activity with intravenous diazepam. *Journal of Pediatrics*, 73(6):923-927, 1968.

During a 9 month period, 53 episodes of prolonged seizure activity in 48 children (CA 1 day to 18 yrs) were treated with intravenous diazepam either until the seizure was controlled or to a maximum dose of 10-15 mg/square meter. Medical diagnoses included idiopathic epilepsy, brain damage syndrome, congenital malformations, degenerative disorders, post- or chronic encephalitis, CNS infections, metabolic disorders, cerebrovascular disorders, trauma, and perinatal brain damage. Satisfactory results (complete control within 5 min) were obtained in 89% of the episodes; the only complication was the development of transient apnea in 2 patients. Repeated administration of the drug in 13 patients did not reduce its effectiveness. (11 refs.) - *M.G. Conant.*

Departments of Neurology and
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Children's Hospital of the District of Columbia
Washington, D. C.

996 VAS, C. J., & PARSONAGE, M.J. Treatment of intractable temporal lobe epilepsy with pheneturide. *Acta Neurologica Scandinavica*, 43(5):580-586, 1967.

Forty-four patients with intractable temporal lobe epilepsy were treated with 200 mg pheneturide 3-5 times daily, in addition to the pre-existing anticonvulsant therapy (phenobarbitone, phenytoin, primidone, methione, or sulthiame), for a period of 5-48 months. Sixteen patients showed excellent (cessation of seizures) or good (50% decrease in seizure incidence) results, 14 showed no change, and 14 discontinued treatment after the development of side-effects (drowsiness and ataxia were the most common). Other side-effects included headache, vertigo, dysarthria, constipation, anorexia, and skin rash. Seven patients showed elevated serum alkaline phosphatase levels which could not be related to specific liver or bone disturbances nor to any blood dyscrasias. Pheneturide appears to be of some value in treatment of temporal lobe epilepsy. (10 refs.) - *M.G. Conant.*

Departments of Neurology and
Electroencephalography
The General Infirmary at Leeds
Leeds 1, England

997 CAMPAIGNE, E., ROELOFS, WENDELL L., & WEDDLETON, RICHARD F. 3a,4,5,6-Tetrahydrosuccinimido [3,4-b]-acenaphthen-10-one. A potent anticonvulsant. *Journal of Medicinal Chemistry*, 11(2):395-396, 1968.

3a,4,5,6-Tetrahydrosuccinimido [3,4-*b*]-acenaphthen-10-one (THSIA) was prepared and found to be a potent anticonvulsant of very low toxicity. THSIA can be easily prepared with an overall yield of 50 to 60%. This compound has an ED_{50} of 35 mg/kg *po* against maximal electric shock in mice and a maximal effective dose of 100 mg/kg *po* against pentamethylene- tetrazole-induced convulsions in mice. The LD_{50} was greater than 3,000/mg/kg in mice. THSIA in its pharmacological activity was, therefore, not quite as active as diphenylhydantoin (DPH) in animals and had an activity duration about 1/3 of DPH; however, THSIA may have therapeutic value because of its relatively low toxicity. (6 refs.) - *F.J. McNulty.*

Indiana University Chemistry Laboratories
Bloomington, Indiana 47405

998 BLAW, MICHAEL E., & TORRES, FERNANDO. Epilepsy and pseudoretardation—Therapeutic considerations. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 9, p. 187-206.

Epilepsy may be associated with MR as either a cause or a consequence of neuroanatomical or biochemical malfunctions. Occasionally factors associated with epilepsy lead to symptoms of MR without the underlying structural component. Emotional reactions of parents, peers, and the school are important factors to consider. The EEG can be helpful in indicating the focal point of seizures and in determining the specific seizure pattern. Specific treatment can then be prescribed. Consideration must also be given to the possible toxic effects of medication. (15 refs.) - *J. M. Gardner.*

999 RICHARDS, E.H. Aspects of epilepsy and burns. *Epilepsia*, 9(2):127-135, 1968.

Epileptics represented a significant proportion (8.6%) of new adult admissions to a burn unit, and 30 of these patients were studied intensively in order to determine the demographic, social, and psychiatric variables associated with such accidental burns. All burns occurred during seizures, and 1/2 the group had experienced prior burns in the same way. Eighty percent were judged to have had poor previous social adjustment as seen in work records and history of interpersonal and marital relationships. All but one were in the lower 3 social classifications, and 63% were in Class V (unskilled including unemployed). Measurement of intelligence showed 51% with IQ less than 90 and 20% with IQ less than 70. Over 3/4 of the Ss were judged as having personality difficulties but none were in psychiatric treatment. This extremely high-risk, yet neglected, group requires more comprehensive medical and social help, especially services from neurologists, psychiatrists, general practitioners, and social workers. (10 refs.) - *E.L. Rowan.*

Queen Elizabeth Hospital
Birmingham, Great Britain

MEDICAL ASPECTS—CHROMOSOMAL

1000 WARD, PAUL H., ENGEL, ERIC, & NANCE, WALTER E. The larynx in the cri du chat (cat cry) syndrome. *Laryngoscope*, 78(10):1716-1733, 1968.

The *cri-du-chat* syndrome can be recognized at birth by the unusual wailing cry of the infant. Other features diagnostic of this condition are: MR, microcephaly, hypertelorism, epicanthal folds, strabismus, hypotonia, rounded facies, antimongoloid palpebral fissures, and visceral abnormalities. Girls are more likely to be affected than boys. This syndrome results from a sporadic chromosome deletion and has a very low recurrence rate in siblings, unless one of the parents is a carrier of a chromosome translocation. Chromosome studies should be made for genetic counseling of parents of affected children. Laryngeal abnormalities were found in 4 Ss with this disorder and included abnormalities of the epiglottis and vocal cords and a large air space in the posterior commissure area during phonation. These abnormalities are responsible for the peculiar cat-like cry diagnostic of this syndrome. (15 refs.) - *B. Bradley.*

Department of Medicine
Vanderbilt University School of Medicine
Nashville, Tennessee 37205

1001 GEY, W., & BENDER, K. Translokation 4/C (4q-,Cp+) bei einem psychomotorisch retardierten und mißgebildeten Madchen (Translocation 4/C [4q-,Cp+] in a girl with psychomotor retardation and deformity). *Helvetica Paediatrica Acta*, 23(5):533-539, 1968.

A patient with mental and growth retardation and numerous abnormalities has an unusual chromosomal translocation not previously described. The S was the first child of second cousins; family history was negative for spontaneous abortion, MR, and congenital deformity. At 7 weeks of age, the patient was dystrophic, lethargic, inattentive, and below the third percentile for weight, length, and head circumferance. Her extremities, fingers, toes, and nails were abnormal. There was clinical and X-ray evidence of hip joint dysplasia. Although the round face, microcephaly, receding chin, low-set ears, and prominent glabella resemble *cri-du-chat* syndrome, this child did not have the eyelid structure, hypertelorism, and peculiar cry which are characteristic of the cat-cry syndrome. Evidence of a convulsion potential was found on EEGs, and at 11 months of age, tonic-clonic seizures were seen. Peripheral blood and skin fibroblast studies revealed a translocation between a chromosome 4 and a C-group chromosome. The abnormalities of this child may have been due to loss of the distal segment of the C chromosome, loss of the intercalar segment, or an influence of the arrangement of chromosomal material with no actual loss of chromosome material. The origin of the aberration may have been a reciprocal translocation in the germ cells of one parent, a unique event during meiosis, or an occurrence during the first postzygotic cell division. (11 refs.) - *C.A. Rizvi.*

Universitatskinderklinik Munchen
Munich, West Germany

1002 MIKKELSEN, MARGARETA, MORTENSEN, ELSE, SKAKKEBAEK, N.E., & YSSING, MINNA. Familial reciprocal translocation between a C group (12?) chromosome and a late labelling G chromosome. *Acta Genetica et Statistica Medica*, 18(3):241-250, 1968.

An infant with multiple anomalies who died at 4 1/2 months had a reciprocal translocation of a group C chromosome and a group G chromosome in an unbalanced state; her father had the same translocation in a balanced state. The patient had anomalies of the head, eyes, face, ears, and muscles. Muscle anomalies were responsible for the presence of torticollis, abdominal diastasis, and deformities of the extremities from unusual contractions. An atrial septal defect and cerebral dysplasia and hypoplasia were found at autopsy. During life, the patient did not thrive, nor did she interact with others. Family history was normal with the exception of a maternal uncle with Down's syndrome. Autoradiographic studies on lymphocytes from the blood of the patient and her father showed 46 chromosomes. The patient had 7 chromosomes in the D group and 3 in the G group. The father had 7 chromosomes in the D group, 4 in the G group, 5 in the 17-18 group, and 14 in group C. The father's karyotype was a balanced reciprocal translocation of a C chromosome, probably number 12, and the late labeling G group chromosome. The translocation G chromosome resembled a D chromosome, and the C chromosome resembled—but was more metacentric than—a 17-18 chromosome. The patient's karyotype was probably a partial trisomy for a middle group chromosome with possible G chromosome monosomy. (10 refs.) - *E. Gaer.*

Arvebiologisk Institut
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1003 LUCIANI, J.M., *STAHL, A., & VAGUE, J. Huit cas de satellite double, et occasionnellement triple, sur un chromosome du groupe D, dont six cas familiaux (Eight cases of double, and occasionally triple, satellites on a group D chromosome, including six familial cases). *Annales de Genetique*, 11(3):157-168, 1968.

Karyotypic studies on 4 patients revealed the existence of double and, in one instance, triple satellites on group D chromosomes. The patients had no major malformations, and were being observed for primary amenorrhea, bilateral testicular ectopy, impotence, or external genital malformations. Karyotypic analyses on their family members revealed 4 additional cases of this anomaly of acrocentric chromosomes. The abnormality cannot be related to a specific clinical phenotype, but may increase the risk of other mitotic and chromosomal anomalies. Malformations observed in these 8 cases and in those previously reported include cranial malformations, hypertelorism, low-set ears with absent Darwin tubercules, micrognathism, dental anomalies, clinodactyly, shortness of the fourth metacarpal, and psychomotor retardation. (24 refs.) - *M.G. Conant.*

*Laboratoire d'Histologie et Embryologie II
Faculte de Medecine
13-Marseille, France

1004 OTT, JOHN E., ROBINSON, ARTHUR, & PEAKMAN, DAVID C. D/D balanced translocations. *Lancet*, 2(7582):1352-1353, 1968. (Letter)

Seven family members with normal phenotype (and an MR proband with de Lange syndrome) have a reciprocal translocation involving 2 chromosomes in the group 13-15. The balanced D/D translocation is the most common chromosome structural abnormality in the phenotypically normal population, and the number of these translocations found in families is greater than expected. (3 refs.) - *E.L. Rowan.*

Department of Pediatrics
University of Colorado Medical Center
Denver, Colorado 80220

1005 GUSTAVSON, K.-H., JOHANSSON, S.G.O., & *WRANNE, L. Immunoglobulins in 13-15 trisomy syndrome due to a translocation. *Acta Paediatrica Scandinavica*, 57(5):436-440, 1968.

A male infant with the 13-15 translocation trisomy syndrome showed brachycephaly, convergent strabismus, malformed ears, rudimentary sixth digits on both hands, skeletal abnormalities, and retarded development; however, typical features associated with 13-15 trisomy, such as deafness, harelip, cleft palate, and four-finger lines, were absent. Both parents had normal karyotypes. Quantitative determinations of the different immunoglobulins in serum indicated subnormal levels of IgG, IgA, and IgM, despite numerous infections; however, the levels were not significantly lower than those in normal infants of the same age. This syndrome may be associated with a disturbed and delayed immunological development. The patient is still alive at 27 months; such longevity in the 13-15 trisomy syndrome is unusual. (19 refs.) - *M. G. Conant.*

*Department of Pediatrics
Akademiska Sjukhuset
Uppsala, Sweden

1006 DE CAPOA, A., MILLER, D.A., MILLER, O.J., & BREG, W.R. Asynchronous DNA replication and discordant length of homologous autosomes demonstrated by the use of markers. *Nature*, 220(5164):264-266, 1968. (Letter)

Three cases with apparent deletions of the short arm of a D group chromosome were studied with tritiated thymidine. Case 1 was phenotypically normal, and the chromosome involved was number 13 (13p-) of the D group. Case 2 was a malformed, SMR female with a deletion of the short arm of number 14 (14p-). Case 3 had mild MR and chromosome number 15 (15p-) was involved. In addition, a case of the 18p- syndrome was studied. Deleted chromosomes were consistently more heavily labeled than their homologues, especially in the 13p- and 18p- cases. Such asynchrony did not occur between homologues in either the D or E groups in 125 control cells. The 13p- and 18p- chromosomes seem to be the last ones in their groups to terminate DNA synthesis. The long arm of the deleted chromosomes was significantly shorter than that of its homologues in the 13p-, 15p-, and 18p- cases. A discrepancy in labeling and length in the 14p- case could have been caused by a reciprocal translocation between chromosome 14 and another more heavily labeled chromosome. (6 refs.) - *M.G. Conant.*

Department of Obstetrics and Gynecology
College of Physicians and Surgeons
Columbia University
New York, New York 10032

1007 FREDGA, KARL. Identification by autoradiography of the chromosomes involved in a familial 15/18 translocation. *Separat ur Hereditas*, 60(1-2):129-148, 1968.

A mother and 2 sons previously determined to have D/E reciprocal chromosome translocations were investigated to determine which of the D group chromosomes were involved in the translocation. The mother and one son lacked one D chromosome and one E chromosome and had 2 new chromosomes, called Tr_1 and Tr_2. The other son, an MR, had 45 chromosomes and no Tr_2 chromosome. Autoradiography with tritiated thymidine identified the E group chromosome involved as number 18 and the D group chromosome as 15. A review of translocation frequencies suggests that chromosome 15 is less often involved in such chromosomal aberrations than either number 13 or 14. (36 refs.) - *K. Drossman.*

Institute of Genetics
Lund, Sweden

1008 LEISTI, J., GRIPENBERG, U., KIVALO, E., PALO, J., VON SCHOULZ, B., & SUOMALAINEN, E. Two patients with a 46,XX,Er chromosome constitution. *Acta Paediatrica Scandinavica*, 57(5):441-447, 1968.

Two MR girls (CA II and 19 yrs) were sex-chromatin positive and had 46,XX,Er chromosome constitutions; pigmented naevi on the trunk, myopia, retarded growth, and abnormal EEG patterns were observed in the 11-year-old, and pigmentation defects, abnormal EEG patterns, eye defects and grand mal seizures were noted in the older girl. The ring chromosome probably replaced one of the number 18 chromosomes. The apparently similar ring chromosomes led to somewhat different clinical syndromes in the 2 cases. (11 refs.) - *M.G. Conant.*

Children's Hospital
University of Helsinki
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Helsingfors, Finland

1009 SCHMID, E., & BAUCHINGER, M. Structural polymorphism in chromosome 17. *Nature*, 221(5178):387-388, 1969. (Letter)

In 28,000 karyotype analyses from 450 individuals, 5 unrelated individuals had satellites of one chromosome of the homologous pair 17. Three Ss were healthy and phenotypically normal, one had low occupational radiation exposure, and one was examined 3 years after combined radium and X-ray treatment for carcinoma. (10 refs.) - *J. Snodgrass.*

Strahlenbiologisches Institut
Universitat Munchen
Munich, West Germany

1010 BORGAONKAR, DIGAMBER, S., BIAS, WILMA B., SCOTT, CHARLES I., WADIA, RUSTOM S., & BORKOWF, SHIRLEY P. IgA and abnormal chromosome 18. *Lancet*, 1(7587):206-207, 1969. (Letter)

The significance of the association of immunoglobulin A (IgA) with abnormal 18 chromosomes is questioned since a 31-year-old white female with a ring chromosome 18 had normal IgA levels and a 20-month-old white male with a long arm deletion of chromosome 18 showed increases in IgA levels with increasing age. (14 refs.) - *A. Huffer.*

Division of Medical Genetics
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Baltimore, Maryland 21205

1011 RUDD, N.L., MAY, J.B., & LaMARCHE, P.H. IgA and partial deletions of chromosome 18. *Lancet*, 1(7585):100, 1969. (Letter)

An infant, who has partial chromosome deletion of the long arm of an E (17-18) group, exhibits an elevation in immunoglobulin A (195 mg/100 ml at 4 mos, 230 mg/100 ml at 7 mos). (1 ref.) - *A. Huffer.*

Child Development Center
Rhode Island Hospital
Providence, Rhode Island 02902

1012 DE LA CRUZ, F. Autosomal monosomy in a four and a half year old girl—A clinical and cytogenetic report. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 419-428.

Cytogenetic studies on a 4 1/2-year-old female revealed an absent chromosome 21 in 472 metaphase plates. This monosomy, which is the first detected in a living S, is probably due to nondisjunction, asynapsis, or chromosome lag which occurred during gametogenesis in one of the parents—both of whom have normal chromosome complements. The patient has unusual facies, impaired motor development, delayed psychomotor development, and is TMR. Laboratory findings included a slight increase of leukocyte alkaline phosphatase and a decrease of IgA. Apparently autosomal monosomy may not be fatal; however, the possibility that a small amount of group 21-22 genetic material translocated to one of the large chromosomes cannot be ruled out. (17 refs.) - *M.G. Conant.*

1013 MOORE, M. KENT, & ENGEL, ERIC. G chromosome trisomy: Five cases with syndromes other than classical Down's. *Southern Medical Journal*, 61(2):146-154, 1968.

Five cases with an extra short acrocentric chromosome, who were clinically atypical when viewed as Down's syndrome, did not disclose a pattern compatible with G-22 trisomy. A score was established for each of these patients based on the presence of well recognized mongolian stigmata. Furthermore, each case was matched with a typical mongoloid. By using these criteria, 4 of the 5 cases could still be classified as atypical cases of Down's syndrome. The fifth patient could not be classified as a patient with Down's syndrome. This patient had a number of the signs present in the D_1 trisomy, and the supernumerary G-like chromosome probably represented a partial D-trisomy. The reasons for clinical variance in Down's syndrome and the origin of non-mongolian supernumerary G-like chromosomes are discussed. (20 refs.) - *G. Pura.*

Department of Medicine and Pediatrics
Vanderbilt University
Nashville, Tennessee 37205

1014 CHIGIER, E. *Mongolism in the Greater Tel-Aviv Area of Israel: A Medico-Social Cross-Cultural Study*. Jerusalem, Israel, Hebrew University, 1969, 140 p. (Price unknown)

Cultural factors do not differentiate between families of mongoloids of European and Oriental origin in the greater Tel-Aviv area. This study investigated ethnic factors related to mongolism in Tel-Aviv and explored rehabilitative, educational, and social problems with the parents. A register of mongoloids in the region was established in order to improve community services, programs, and facilities. The study included 81 Oriental and 183 European Jewish families with a mongoloid child. Sixty-five fathers of mongoloid children and 43 mothers of normal children were examined for comparative purposes. The medical findings indicated

no difference between European and Oriental Jews in relation to maternal age, sex distribution, and clinical features. The 2 groups differed in mortality rate, incidence of radiation, morbidity, and age distribution. Psychosocially, the behavioral patterns, maternal attitudes, social adaptability, interpersonal relationships with siblings, family limitations, residential placement, and the role of religion did not differ between the 2 groups. European families contacted more professionals, were more active in groups designed for parents, and had a lower discipline rate. These families were usually higher socioeconomically and were usually composed of smaller family units. (71 refs.) - *S. Half.*

1015 ZILKE, Y. A survey of mortality of mongols in the Greater Tel-Aviv Area. *Child Health in Israel*, 5(June):14, 1969.

Of 269 mongoloids living in the Greater Tel-Aviv Area between 1952-1966, 33% died (91% of these within a year of birth). Cardio-respiratory disorders were the most common cause of death. Clinical or postmortem records revealed that 41% had congenital heart disease. (No refs.) - *A. Huffer.*

No address

1016 BAIRD, P.A., & MILLER, J.R. Some epidemiological aspects of Down's syndrome in British Columbia. *British Journal of Preventive and Social Medicine*, 22(2):81-85, 1968.

Data on Down's syndrome births in British Columbia showed no periodicity in occurrence nor any correlation with the incidence of infectious hepatitis. Down's syndrome births showed no significant variation in yearly or seasonal incidence; however, there was a tendency toward a higher incidence in urban as opposed to rural areas. Incidence of Down's syndrome could not be correlated with incidence of streptococcal infection, chickenpox, influenza, measles, mumps, poliomyelitis, nor rubella. A statistical technique for detection of time-space clustering found no clustering of cases of Down's syndrome, although significant clustering of hepatitis was detected. (20 refs.) - *M.G. Conant.*

Division of Medical Genetics
Department of Pediatrics
University of British Columbia
British Columbia, Canada

1017 COWIE, VALERIE, & SLATER, E. The fertility of mothers of mongols. *Journal of Mental Deficiency Research*, 12(3): 196-208, 1968.

Anamnestic obstetrical and gynecological data were obtained from 69 mothers of mongoloids in Southern England and from control women who had given birth to a baby at the same age as the mothers of propositi. The 2 series showed no significant differences with respect to the number of live births, excluding the index case, the mean fertility up to age 35, the mean pregnancy-free interval preceding the index case, and the miscarriage rate. Beyond a maternal age of 35, the fertility of the mongoloid mothers exceeded that of the controls. Gynecological disorders, including menstrual irregularity, bleeding in the first trimester, and complications during the pregnancy were observed in 16 of the 69 mothers of mongoloids. Comparable data were not obtained from the control series. (13 refs.) - *M.G. Conant.*

Institute of Psychiatry
Maudsley Hospital
London S.E. 5, England

1018 GOODHART, C.B. Mongolism and coital frequency. *Nature*, 219(5160):1280, 1968.

The hypothesis that older women have more mongoloid children because of a lower frequency of coitus with increasing age could be tested by comparing the incidence of Down's syndrome among married and unmarried women of equivalent age. Since unmarried women would be expected to have less intercourse, the incidence would be expected to be higher if this hypothesis is correct. (4 refs.) - *J.M. Gardner.*

Department of Zoology
University of Cambridge
Cambridge, England

1019 DEKABAN, A.S., & ZELSON, J. Retardation in a child with an extra submetacentric chromosome fragment and partial mongolism. *Journal of Mental Deficiency Research*, 12(3):216-225, 1968.

Clinical, laboratory, and chromosomal examination of a 4-year-old girl revealed MR (IQ of 50) and several positive and equivocal characteristics of mongolism: short stature; small head, slight epicanthic fold; borderline dermatoglyphics; absent twelfth ribs; and moderate hyperextensibility of the joints. Cytogenetic studies showed a modal chromosome number of 47; the extra element was a small submetacentric chromosome about 2/3 the length of other G group chromosomes. This probably represents partial trisomy G associated with partial clinical manifestations of mongolism. No other abnormalities were present in the family. (19 refs.) - *M.G. Conant.*

Section on Child Neurology
National Institutes of Health
Bethesda, Maryland 20014

1020 DE CORIAT, LYDIA F., THESLENCO, LUISA, & WAKSMAN, J. The effects of psycho-motor stimulation on the I.Q. of young children with trisomy 21. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 377-385.

In the mongoloid infant, the primary reflexes (oral reflex, ocular fixation reflex, postural reflex, and straightening and walking reflex) are present, but cannot furnish the child with required postural and behavioral patterns. In addition to these neurological factors, development is hindered by emotional troubles arising

from parent attitudes. Specialized early training by the mother which stimulates reflexes and perceptions not only improves the developmental quotient but also ensures the mother-child relationship and, later, the child-family, and child-society relationships. (15 refs.) - *M.G. Conant.*

1021 SZNAJDER, NORMA, CARRARO, JUAN J., OTERO, ELENA, & CARRANZA, FERMIN A., JR. Clinical peridontal findings in trisomy 21 (mongolism). *Journal of Periodontal Research*, 3(1):1-5, 1968.

The prevalence and severity of periodontal disease in 123 mongoloid patients (CA 4-21 yrs; mean age 11.69 yrs) was studied by using Ramfjord's indices for gingivitis, calculus, attrition, mobility, contact relations, and plaque. In addition, 37 patients were scored by Ramfjord's Peridontal Disease Index (PDI). The presence of periodontal pockets, mild to moderate gingival disease, scanty calculus, and heavy plaque formation with the most severe changes in the lower anterior area were found. The values increased gradually with age, except for the PDI, on which the group aged 8-12 years showed values below those of the group aged 4-7 years. (24 refs.) - *M.G. Conant.*

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Buenos Aires, Argentina

1022 FINLEY, WAYNE H., FINLEY, SARA C., HARDY, JULIAN P., & McKINNON, THOMAS. Down's syndrome in mother and child. *Obstetrics and Gynecology*, 32(2):200-203, 1968.

An 18-year-old patient with Down's syndrome gave birth to a female infant with the same syndrome. Both had 21-trisomy karyotypes. A review of the literature revealed that of 16 infants born to mongoloid mothers, 6 also had Down's syndrome. The primordial cell of a mother with 3 number 21 chromosomes can apparently give rise to an ovum with 2 number 21 chromosomes or a normal ovum. As the life expectancy of patients with Down's syndrome increases and these individuals lead less sheltered roles in society, the number of their offspring will probably increase. (21 refs.) - *E.L. Rowan.*

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University of Alabama Medical Center
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Birmingham, Alabama 35233

1023 FARNHAM, ELIZABETH. The progress of Elizabeth. *Nursing Mirror*, 127(18):40-41, 1968.

A longitudinal study of a mongoloid girl who was institutionalized at age 4 years is presented by her teacher. Her habits, upon admittance, were undesirable, she spoke very little, and had acute behavior problems; however, it was discovered that she responded to music. Between the ages of 4 and 16 years she became toilet trained and learned to talk, dress herself, recognize colors and coins, assemble jigsaw puzzles, and form letters. Although she was thought to be incapable of learning to read and write, at the age of 17 years she wrote a letter to her family. She has since become aware of the meaning of numbers, mastered simple addition, participated successfully in sports and complicated dances, created neatly stitched handworks, and produced 4 paintings which were used in a national art exhibit. Although the S is nearly 21 years old, has the MA of a 5-year-old, lacks the ability to adapt her knowledge, and will never be completely independent, she has achieved ultimate success in her world; she is considered an intellectual, an enthusiastic leader, and a person who has learned to enjoy life. This study can be used as an example which disputes early pessimistic predictions and encourages educational opportunities for all MRs. (No refs.) - *V.R. Shaffer.*

No address

1024 ZELLWEGER, H., GROVES, B.M., & ABBO, G. Trisomy 21 with borderline mental retardation. *Confinia Neurologica*, 30(3):129-138, 1968.

A 45-year-old white male with typical mongolism was found to have an unusually high IQ (verbal IQ 80, performance IQ 69, and full-scale IQ 74 on the Weshsler Adult Intelligence Scale). The S showed the appearance and behavior of a mongoloid except for the absence of epicanthic folds and ocular slanting; he could read at the first grade level but had no abstract reasoning ability. This S also had an ability to converse far beyond that of the typical mongoloid. Chromosome analysis revealed trisomy Gm and there was no evidence of a partial deletion of the Gm chromosome nor chromosomal mosaicism present to indicate a forme fruste of mongolism. Environmental factors alone are not likely to be responsible for the mental status observed in the patient. (27 refs.) - *M.G. Conant.*

Departments of Pediatrics and Medicine
University Hospitals
Iowa City, Iowa 52240

1025 LOESCH-MDZEWSKA, DANUTA. Some aspects of the neurology of Down's syndrome. *Journal of Mental Deficiency Research*, 12(3): 237-246, 1968.

A group of 123 mongoloid Ss (54 with CA 3-18 yrs and 69 with CA 19-62 yrs) were examined neurologically for the presence of irregular pupils, sluggish reaction to light, convergent squint, nystagmus, brisk mandibular reflex, facial muscle hyperreflexia, pyramidal tract impairment, hypotonia, and absence of Mayer's reflex. The majority of the Ss showed the above neurological symptoms, even at an early age, with most symptoms increasing in frequency and in intensity with increasing age. This finding suggests that the neuropathological changes in Down's syndrome are developmental and progressively degenerative. Hypotonia showed an opposite trend, and most neurological symptoms tended to be more frequent in patients of lower IQ; EEG abnormalities were observed in 31 Ss. (29 refs.) - *M.G. Conant.*

Laboratory of Genetics
Psychoneurological Institute
Pruszkow near
Warsaw, Poland

1026 RICHARDS, B.W. Mosaic mongolism. *Journal of Mental Deficiency Research*, 13(1):66-83, 1969.

The relative incidence and the absolute incidence of mosaic mongolism were 1/48 (about 2%) and 1/31,000, respectively; the incidence of mongolism in the general population is 1/650. Of 51 mosaics, about 20% were derived from normal zygotes, and about 80% from trisomic zygotes. It appears that trisomic zygotes are nearly 40 times as liable to anaphase lagging as to nondisjunction and that nondisjunction of trisomic zygotes is about 70 times as common as nondisjunction of normal zygotes. These estimates apply to mitotic errors leading to clinically recognizable mongolism. A sample of 230 mosaics ascertained by questionnaires was used to estimate the incidence of different types of mosaicism, to obtain the frequency distribution of trisomic cells in blood and skin, and to examine the relationship between the age of the mosaic mongoloid and the proportion of trisomic cells. (42 refs.) - *G. Pura.*

St. Lawrence's Hospital
Caterham
Surrey, England

1027 DALLAIRE, LOUIS, KINGSMILL-FLYNN, DIANA, & LEBOEUF, GILES. Autoimmunity and chromosomal aberrations: Serological studies in mothers of children with Down's syndrome. *Canadian Medical Association Journal*, 100(1):1-4, 1969.

Two conventional thyroid serological tests (tanned red-cell hemagglutination and complement fixation) revealed a significant increase of antibodies in 86 euthyroid mothers of children with Down's syndrome. The results showed that 23.3% of these mothers had circulating thyroglobulin antibodies as compared to 10.4% of matched controls. The complement fixation reaction with an extract of thyrotoxic gland was positive in 61.0% and 13.9% respectively in the 2 groups. Of the 13 mothers whose first single pregnancy resulted in a mongoloid child, none had thyroglobulin antibodies, but 7 had a positive complement fixation test. These findings have been examined in the light of the present knowledge of thyroid autoimmunity and have led us to conclude that the results support the concept that a maternal autoimmune phenomenon is related to the birth of some aneuploid children but also suggest that the cornerstone of the deranged immunological reaction may not be thyroid-specific. (20 refs.) - *Journal summary.*

Medical Genetics Laboratory
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Montreal, Quebec, Canada

1028 EBBIN, ALLAN J., HEATH, CLARK W., JR., MOLDOW, RAYMOND E., & LEE, JANET. Down's syndrome and leukemia in a family. *Journal of Pediatrics*, 73(6):917-920, 1968.

A family is reported in which a child with leukemia has a sib and 3 other relatives with Down's syndrome. Acute lymphocytic leukemia was diagnosed at the age of 4 years in the proband who had 8 normal sibs and a younger brother with Down's syndrome. In addition, a paternal aunt, a maternal second cousin, and a maternal first cousin once removed (deceased) had Down's syndrome. Cytogenetic studies on the 3 living patients with Down's syndrome showed trisomy G, while other persons in the family were normal. It is probable that some etiological relationship exists among leukemia, Down's syndrome, and other chromosomal aberrations. (11 refs.) - *M.G. Conant.*

Leukemia Section, Epidemiology Program
National Communicable Disease Center
Atlanta, Georgia 30333

1029 SUTNICK, ALTON I., LONDON, W. THOMAS, GERSTLEY, BETTY JANE S., CRONLUND, MALCOLM M., & BLUMBERG, BARUCH S. Anicteric hepatitis associated with Australia antigen: Occurrence in patients with Down's syndrome. *Journal of the American Medical Association*, 205(10):670-674, 1968.

The frequency of Australia antigen and serum glutamic pyruvic transaminase (SGPT) levels were studied in 377 patients with Down's syndrome, in 188 unclassified MRs from large institutions, and in 114 staff members from a large institution. Australia antigen was present in 27.7% of Down's syndrome patients from large institutions, in 3.2% of unclassified MRs from the same institutions, and in 1.5% of those with Down's syndrome in small institutions, and absent in newborns, staff personnel, and noninstitutionalized patients. Australia antigen is more frequent in younger patients and in males, and there is an association between the presence of Australia antigen and elevated SGPT levels. The 4 patients with Down's syndrome, Australia antigen, and elevated SGPT levels who underwent liver biopsy had histological evidence of hepatitis. These findings are best explained by the operation of an environmental factor, probably infectious, present in large institutions and a host susceptibility factor associated with Down's syndrome. (27 refs.) - *M.G. Conant.*

7701 Burholme Avenue
Fox Chase
Philadelphia, Pennsylvania 19111

1030 McCOY, E.E., & NANCE, JOANNE L. Lipid composition and synthesis of isolated lymphocytes from patients with Down's syndrome. *Journal of Mental Deficiency Research*, 13(1): 34-43, 1969.

Blood samples from 12 Down's syndrome male patients (CA 15-22 yrs) and 13 normal males (CA 20 to 23 yrs) were used to study the composition and biosynthesis of neutral lipids and phospholipids in mongolism. All of the Ss consumed a similar amount of lipid as in the average American diet. Forty ml of blood was collected from each S and was sedimented. Lymphocytes were isolated by the glass bead column technique and resuspended. Lipids were extracted from the lymphocyte suspension and neutral lipids were separated in duplicate by thin layer chromatography. Acetate C^{14} incorporation was measured and phospholipid classes were separated. The average total lipid content of the Down's syndrome Ss was 2.65±0.33

mg with an average specific activity of 2.93±0.43 as compared to 2.43±0.29 mg in normals with a specific activity of 2.77±0.45 (these figures represent no statistical difference). The amount of lipid in phospholipid, triglyceride, cholesterol, and cholesterol ester was similar and acetate C^{14} incorporation into these compounds was similar with the exception of the incorporation into cholesterol which was significantly greater ($p<.005$) in mongoloids than normals. The amount of the 5 phospholipid fractions in both groups was similar. Mongoloids incorporated significantly ($p<.025$) more sphingomyelin (0.26±.04 mg) than normals (0.15±.02) and significantly ($p<.05$) less phosphatidyl serine-phosphatidyl inositol (1.00±0.22) than normals (1.95±0.50). There is a probable disturbance of function in mongoloids which may result from the differences of lipid composition and synthesis in lymphocytes. (17 refs.) - *V.G. Votano.*

Department of Pediatrics
University of Virginia
School of Medicine
Charlottesville, Virginia 22904

1031 RUVALCABA, ROGELIO H.A., FERRIER, PIERRE E., & THULINE, HORACE C. Incidence of goiter in patients with Down's syndrome. *American Journal of Diseases of Children*, 118(3):451-453, 1969.

An association between Down's syndrome and goiter was investigated by the clinical examination of 307 patients with Down's syndrome and 327 controls in an institution for the MR. Clinical goiter was detected in 5 patients with Down's syndrome (and in an additional case living at home), but in none of the controls. Five of the 6 cases were females. Both biochemical and thyroid antibody studies confirmed the diagnosis of thyrotoxicosis in these patients. The association of thyroid disorder and Down's syndrome requires further epidemiological assessment. (8 refs.) - *E.L. Rowan.*

Rainier School
Buckley, Washington 98321

1032 WALKER, FRANK A., & ISING, RENATE. Mosaic Down's syndrome in a father and daughter. *Lancet*, 1(7590):374, 1969. (Letter)

A 6-year-old borderline MR female and her father were found to have mosaic Down's syndrome. This familial association may have resulted from aneuploid sperm with subsequent somatic reduction in some fetal cells, or from a familial tendency to somatic nondisjunction. (No refs.) - *V.R. Shaffer.*

Department of Pediatrics
Marquette School of Medicine
Milwaukee,
Wisconsin 53233

1033 CULLEY, W., & PETERS, A. Testosterone and epitestosterone excretion by individuals with Down's syndrome. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 857-859.

Testosterone and epitestosterone were isolated by thin layer chromatography from 24-hour urines of 12 patients with Down's syndrome (CA 18-52 yrs) and of 11 high functional non-differentiated MR male controls (CA 19-52 yrs). The levels of these androgens were then determined by gas chromatography. The Ss with Down's syndrome excreted significantly less testosterone and epitestosterone than the control group, even when excretion was calculated on the basis of body weight and height. No correlation was found between age and the level of excretion of either androgen. (5 refs.) - *M.G. Conant.*

1034 LITMAN, NEIL N. Down's syndrome, hypothyroidism, and diabetes mellitus. *Journal of Pediatrics*, 73(5):798, 1968. (Letter)

The case history is presented of an 18-month-old child (delivered of a 38-yr-old primipara) with Down's syndrome at birth and later, at 13 months, discovered to have diabetic mellitus and hypothyroidism. The child is currently receiving one grain of thyroid/day in addition to ultralente and regular insulin. (No refs.) - *V. R. Shaffer.*

Childrens Medical Group
5830 Overhill Drive
Los Angeles, California 90043

1035 McCLURE, HAROLD M., BELDEN, KATHY H., & PIEPER, W.A. Autosomal trisomy in a chimpanzee: Resemblance to Down's syndrome. *Science*, 165(3897):1010-1012, 1969.

An infant chimpanzee (*Pan troglodytes*) with clinical, behavioral, and cytogenetic features similar to those in Down's syndrome is described. The infant shows retarded growth rate, congenital abnormalities, retarded neurologic and postural development, epicanthus, hyperflexibility of the joints, muscle hypotonia, and trisomy of a small acrocentric chromosome. (7 refs.) - *Journal abstract.*

Yerkes Regional Primate Research Center
Emory University
Atlanta, Georgia 30322

1036 CHAUDHURI, AMALA, CHANDRA, R.K., KAUL, K.K., DABKE, A.T., & CHAUDHURI, K.C. A possible case of trisomy 22. *Journal of Mental Deficiency Research*, 12(3):177-186, 1968.

A 12-year-old female with dwarfism, peculiar facies, psychomotor retardation, micrognathism, hypertelorism, extreme lordosis, and normal sexual development was found, after blood and bone marrow cell examination, to have a modal chromosome number

of 47 with an extra G chromosome. Digital patterns and the palmar configurations were normal. Since the patient did not have the phenotypes associated with Down's or Klinefelter's syndrome, it was suggested that this was a case of trisomy 22. A consideration of the anomalies in this case and in 17 other cases of presumptive G 22 trisomy indicated that dysfunction of a pleuripotent mesenchymal cell may be responsible for the clinical manifestations in these patients, and that the genes on chromosome 22 may control this activity. (25 refs.) - *M.G. Conant.*

Chaudhuri Centre for Medical Genetics
Calcutta-14, India

1037 DALY, J.J., HUNTER, H., & RICKARDS, D.F. Klinefelter's syndrome and pulmonary disease. *American Review of Respiratory Disease*, 98(7):717-719, 1968.

Of 30 Ss with chromatin positive Klinefelter's syndrome (CA 15-70 yrs), 20 had gynecomastia and all 30 had testicular atrophy. Twenty-one Ss had karyotypes of XXY, 3 Ss had XXYY, and 1 was XXXY. Five were probable mosaics. Respiratory data revealed that 17 had a history of chronic bronchitis, and 6 had had pneumonia at least once. Four patients had a long history of asthma; 14 Ss had indications of obstructive airway disease. Intelligence was assessed at less than 80 in 16 Ss. The ratio of forced expiratory volume (0.75-sec) to vital capacity was less than 70% in 12 Ss. Although 5 patients had chest deformities, lung function studies did not show that these thoracic cage deformities were responsible for pulmonary disorders. Abnormal chest X-rays were found in 8 Ss. No relationship was found between gynecomastia and lung disease. Among those patients with an XXY or XY/XXY karyotype, those with pulmonary disease had a significantly ($P<0.05$) greater mean height. (21 refs.) - *B. Bradley.*

Department of Medicine
Royal Hospital
Sheffield, England

1038 WOOLLACOOT, S., & PEARCE, JOHN. A myotonic syndrome associated with Klinefelter's syndrome. *Journal of Medical Genetics*, 4(4):299-301, 1967.

A 23-year-old male who had had attacks of painful stiffness and muscle weakness from the age of 3 years was found to have an XXY karyotype. The patient's symptoms were intensified by exposure to cold. Associated findings included MR, hyporeflexia of arms, small testes, and sparse facial and body hair. Myotonia could be demonstrated in the tongue and arms by percussion or immersion in cold water. Muscular weakness and sensory loss were absent. Electrocardiography showed a partial right bundle branch block; electromyography showed high frequency after discharges typical of myotonia. The S's parents and 2 siblings were normal. A negative response to the potassium-loading test excluded myotonia associated with periodic paralysis, whereas the infrequency of attacks, precipitation by cold, and exclusion of other forms of myotonia would favor a diagnosis of paramyotonia congenita (a distinct clinical entity with dominant inheritance). However, this S may represent an intermediate form between myotonia congenita and dystrophic myotonica. Although a chance association between sex chromosome trisomy and myotonia may exist, it is extremely unlikely. (17 refs.) - *E. Gaer.*

Department of Neurology
The General Infirmary
Leeds 1, England

1039 BUTOMO, I.V., GODINOVA, A.M., & PONOMARENKO, A.M. Osobennosti bioelektricheskoi aktivnosti golovnogo mozga pyai bolezni klainfeltera (Features of cerebral bioelectrical activity in Klinefelter's disease). *Zhurnal Nevropatologii i Psikhiatrii*, 69(1):53-58, 1969.

EEGs performed on 33 patients with Klinefelter's syndrome demonstrated that only 3 Ss had normal tracings. In the 30 Ss with abnormal EEGs, there were different degrees of disorganization of the α-rhythm and the frequency of α-rhythm did not exceed 10 c/second. These patients characteristically had large numbers of slow waves (3-7 c/sec) in the frontal lobes and bilateral synchronic paroxysms of ϕ-function. The number of slow waves appeared to be age-dependent. Although the EEG abnormalities cannot be considered as specific for Klinefelter's syndrome, they do indicate that changes occur in diencephalic structures in this disorder. (18 refs.) - *M. Drossman.*

No address

1040 Abnormal chromosome. *British Medical Journal*, 5627(4):398, 1968.

A 21-year-old Australian male acquitted of murder on the grounds of insanity was noted to possess an extra Y chromosome. Criminal responsibility is ordinarily determined on the basis of a person's state of mind, and if a chromosomal abnormality is associated with mental abnormality, the medico-legal implications are far-reaching. (1 ref.) - *E.L. Rowan.*

1041 DI CAGNO, LIVIA, & FRANCESCHINI, P. Feeblemindedness and XXXX karyotype. *Journal of Mental Deficiency Research*, 12(3):226-236, 1968.

A female child (CA 4 yrs 7 mos) with tetrasomy of the X chromosome had peculiar facies, 80 IQ (Stanford-Binet), and severe speech disturbances. Cytological examination (chromosome analysis, sex chromatin determination, and autoradiography) revealed an XXXX karyotype which probably arose from fusion of an abnormal maternal (XXX) gamete with a normal paternal (X) gamete. This karyotype could also have arisen from somatic nondisjunction affecting both X chromosomes at the first cleavage of the zygote. In this disorder, the only recurrent symptom has been MR of varying degrees, for which prognosis is not favorable. (26 refs.) - *M.G. Conant.*

Clinica Pediatrica dell'Universita di Torino
Torino, Italy

1042 NIELSEN, JOHANNES. Y chromosomes in male psychiatric patients above 180 cm tall. *British Journal of Psychiatry*, 114(517):1589-1590, 1968.

An evaluation of 40 male patients who were above 180 cm in height was made to determine the relationship of a large Y chromosome to antisocial behavior. No patients had the XYY syndrome, but one had Klinefelter's syndrome. The ratio of the mean length of the Y chromosome compared to the mean length of the F chromosomes (Y/F ratio) was used as the index of the size of the Y chromosome. Patients were clinically evaluated for antisocial behavior and patients with a Y/F ratio of 0.95 or more were compared with patients with a ratio less than 0.95. The mean Y/F ratio for the 40 patients was 0.96±.06. Eleven patients had Y/F ratios of 1.00 or more and were separated into character disorder, alcohol abuse, and criminality. There was a significantly (P [Fisher]=0.003) higher frequency of a "relatively large Y chromosome" among patients displaying character disorder, alcohol abuse, or criminality. A large Y chromosome may carry certain genetic predispositions to these disorders. Large Y chromosomes are probably a result of an increase in chromosome material and genes. (12 refs.) - *B. Bradley.*

The Cytogenetic Laboratory
Arhus State Hospital
Risskov, Denmark

1043 CLEVELAND, WILLIAM W., ARIAS, DORALYS, & SMITH, GEORGE F. Radioulnar synostosis, behavioral disturbance, and XYY chromosomes. *Journal of Pediatrics*, 74(1):103-106, 1969.

Chromosome analysis of 2 prepubertal male Negroes (CA 8 and 5 1/2 yrs) revealed an XYY karyotope; both boys had radioulnar synostosis, behavioral problems, mild MR, normal genitalia, and tall stature (seventy-fifth percentile). The chromosomal abnormality in one boy was found by testing 6 patients, 4 of whom were boys with radioulnar synostosis which suggests a possible relationship between the extra Y chromosome and this skeletal abnormality. Violent, aggressive behavior has been reported in male adults with XYY karyotypes; many have MR and excess growth. Environmental factors also may have influenced the development of aggressive behavior in these boys, or this may be a prepubertal manifestation of the behavior found in adults with the YY syndrome. (23 refs.) - *M.G. Conant.*

Department of Pediatrics
University of Miami School of Medicine
Miami, Florida 33146

1044 An English XYY murder trial. *British Medical Journal*, 1(5638):201, 1969. (Editorial)

A tall, intelligent Englishman with an XYY chromosomal complement pleaded guilty to manslaughter of his 4 children on the grounds of mental abnormality. This mental aberration was supported by medical reports; however, his karyotype was never mentioned at the court proceedings. (10 refs.) - *A. Huffer.*

No address

1045 KAPLAN, MARVIN S., *OPITZ, JOHN M., & GOSSET, FRANZ R. Noonan's syndrome: A case with elevated serum alkaline phosphatase levels and malignant schwannoma of the left forearm. *American Journal of Diseases of Children*, 116(4):359-366, 1968.

Two brothers with clinical features of Noonan's syndrome or "male" Turner's syndrome—one severely affected, one mildly affected—are described. The severely affected boy (CA 14 yrs; IQ 58) developed a malignant schwannoma of the left forearm. Both Ss were below normal in stature and had hypertelorism, micrognathia, and manifested signs of congenital heart disease. Both were noted to have elevated serum alkaline phosphatase, a feature not previously observed in Noonan's syndrome. The syndrome frequently occurs in almost all siblings of a proband and often can be demonstrated as minor abnormalities in both parents; this suggests a multifactorial inheritance with variable expressivity rather than a simple recessive genetic mode. Care must be taken to avoid confusion with Turner's syndrome, a definite chromosomal aberration disorder, as karyotypes in Noonan's syndrome patients are normal; therefore, the term "male" Turner's syndrome should be avoided. (22 refs.) - *K. Drossman.*

*Room 109
Genetic Building
University of Wisconsin
Madison, Wisconsin 53706

1046 WRIGHT, NATHAN L., *SUMMITT, ROBERT L., & AINGER, LORIN E. Noonan's syndrome and Ebstein's malformation of the tricuspid valve. *American Journal of Diseases of Children*, 116(4): 367-372, 1968.

A 13-year-old girl with clinical features of Turner's syndrome, poor physical endurance, MR, and short stature was determined to have Ebstein's malformation of the tricuspid valve. Chromosome studies were normal, leading to a diagnosis of "male Turner's syndrome" or Noonan's syndrome. Noonan's syndrome has been noted to be associated with cardiac anomalies, especially pulmonary stenosis; however, Ebstein's tricuspid valvular malformation has not been reported in association with this disorder. (20 refs.) - *K. Drossman.*

*860 Madison Avenue
Memphis, Tennessee 38103

1047 ABDEL-SALAM, EKRAM, & TEMTAMY, SAMIA A. Familial Turner phenotype. *Journal of Pediatrics*, 74(1):67-72, 1969.

Two sibling boys (CA 13 and 5 yrs) who had small stature, low-set ears, hypoplastic mandible and nipples, short webbed necks, left hydronephrosis, antimongoloid slant of eyes, MR, and an undescended testis were determined to have familial Turner's syndrome. Abnormal dermatoglyphics which indicated early onset of the malformation were also found; however, no gross chromosomal abnormalities or biochemical defects were detected. A deceased female sibling may also have been affected with the same disease. The parents were apparently normal, but they were first cousins.

Homozygosity for an autosomal mutation may be a cause of the clinical features of the Turner syndrome. (12 refs.) - *M.G. Conant.*

Pediatrics Department
Cairo University
Cairo, United Arab Republic

1048 AARSKOG, D. Chromosomal abnormalities and short stature in gonadal dysgenesis. Proceedings of the Fifteenth Northern Pediatric Congress (Bergen, Norway, June 28 to July 1, 1967). *Acta Paediatrica Scandinavica, Supplement 177*, 69-72, 1967.

Turner's syndrome is now considered to be a syndrome of X-chromosome monosomy or partial monosomy with subsequent gonadal dysgenesis and a clinical finding of short stature. Two additional case histories support the hypothesis that the short stature and other somatic effects are caused by the loss of the short arm of the X chromosome only, whereas the gonadal dysgenesis can be produced by the loss of either arm. (6 refs.) - *E.L. Rowan.*

Department of Pediatrics
University of Bergen
Bergen, Norway

1049 NEDOK, ALEXANDER S., GARZICIC, BRANIMIR S., & SOLDATOVIC, BOGOSAV M. An association of pseudo pseudohypoparathyroidism and gonadal dysgenesis with XO/XX mosaicism and negative sex chromatin pattern in two females. *Journal of Clinical Endocrinology and Metabolism*, 28(10):1513-1514, 1968. (Letter)

Two amenorrheic women with gonadal hypoplasia were found to have XO/XX sex chromosome mosaicism. Reduced stature, brachydactyly and a failure to induce phosphate diuresis with parathormone support the diagnosis of pseudo-pseudohypoparathyroidism in both cases. (9 refs.) - *E.L. Rowan.*

Institute for Urgent Internal Medicine
Endocrine Unit
Nemanjina 2
Belgrade, Yugoslavia

1050 PAPANICOLAOU, A.D., LORAINE, J.A., & CHARLES, D. Pituitary-gonadotrophic function in Turner's syndrome. *Lancet*, 1(7587):184-186, 1969.

Bioassays of luteinizing hormone (LH) were performed on the urine of 4 patients with Turner's syndrome, one of whom underwent bilateral ovarian transplantation. LH levels were variable in individual subjects, being either within or below the postmenopausal range. There was no apparent correlation between the chromosomal karyotypes and the LH output. A considerable rise in LH excretion followed the ovarian transplantation, but this was not associated with an increase in urinary estrogen output. (29 refs.) - *Journal summary.*

Medical Research Council
Clinical Endocrinology Research Unit
Edinburgh, Scotland

1051 KEITH, C.G. The ocular findings in the trisomy syndromes. *Proceedings of the Royal Society of Medicine*, 61(3):1-3, 1968.

Severe ocular abnormalities are sometimes present in the 6 trisomy syndromes which are well recognized. Ocular involvement is not common in trisomy of the sex chromosomes; however, ocular disorders may be extreme in the trisomy 13-15 syndrome. Although ocular abnormalities are reported to be rare in the trisomy 18 syndrome, drastic eye changes were found in 5 out of 13 cases examined. The ocular features in Down's syndrome, the most common trisomic condition, have been recognized for years. Future research on abnormal division of germ plasm should lead to prevention of these deformities. (12 refs.) - *L. Bayliss.*

Queen Elizabeth Hospital for Children
Institute of Ophthalmology
London, England

1052 WARBURG, METTE. Norrie's disease. *Journal of Mental Deficiency Research*, 12(3):247-251, 1968.

Norrie's disease (the main feature of which is congenital blindness) was found in male members of 6 families in Sweden and Denmark. MR was severe in 9 and moderate in 11 of the 35 blind males, and 11 showed impaired hearing. The children developed normally during the first 2 years of life after which gradual mental deterioration occurred. Blindness is due to a retinal malformation which occurs as early as the fifth or sixth embryonic week. The disease is inherited as a sex-linked recessive trait, with no signs of mental or ophthalmological involvement in the carriers. (6 refs.) - *M.G. Conant.*

Eye Clinic for the Mentally Retarded
Sognevej 40
Copenhagen, Denmark

1053 CLAYTON, ROBERT J., IBER, FRANK L., RUEBNER, BORIS H., & *McKUSICK, VICTOR A. Byler disease: Fatal familial intrahepatic cholestasis in an Amish kindred. *American Journal of Diseases of Children*, 117(1):112-124, 1969.

Byler disease was observed in 7 Amish children from 4 interrelated sibships that could be traced to a common ancestral couple; clinical features of this progressive cholestasis include steatorrhea within the first month of life, jaundice with intermittent exacerbations, hepatosplenomegaly, failure to thrive with dwarfing, and death (in 5 of the 7 patients). Biochemically, the syndrome involves direct and indirect hyperbilirubinemia, elevated serum alkaline phosphatase, normal to low cholesterol, and hypoprothrombinemia. MR is not a primary feature of Byler disease and microscopic examination of liver biopsies in 2 cases revealed findings previously observed in extrahepatic and intrahepatic obstruction. Two of the fathers showed abnormal sulfobromophthalein excretion following loading and 2 mothers showed abnormal single-injection sulfobromophthalein excretion in the last trimester of pregnancy; therefore,

an autosomal recessive mode of inheritance is probable. It is suggested that the primary hepatic defect involves transport across the canalicular membrane resulting in abnormal excretion of bile salts, sulfobromophthalein, and bilirubin. Symptomatic relief was achieved by administration of cholestyramine and medium chain triglyceride formula. (20 refs.) - *M.G. Conant.*

*Department of Medicine
Johns Hopkins Hospital
Baltimore, Maryland 21205

1054 PASSARGE, EBERHARD. Advances in human cytogenetics—II. Clinical aspects. In: National Foundation-March of Dimes. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, p. 38-44.

Important cytogenetic findings from 1965 to 1967 provide increased knowledge about autosomal deletion syndromes, structurally abnormal sex chromosomes, numerical abnormalities of sex chromosomes, X-autosomal translocations in man, chromosomal breakage and rearrangement, and polyploidy in man. A number of distinct syndromes which appear to be associated with deletions of specific regions of certain autosomes and which involve chromsosomes 4, 5, 18 and 21 have been identified. Other autosomal deletion syndromes are associated with deletion of the short arm of chromosome 5, deletion of the short arm of chromosome 4, deletions in chromosomes 13-15, partial deletion of chromosome 18, and deletions in chromosomes 21 and 22. Also, the X and Y chromosomes can be structurally abnormal in various ways. Observations of numerical abnormalities in sex chromosomes in males have associated them with specific developmental and behavioral characteristics. The discovery of Bloom's syndrome and Fanconi's anemia which are characterized by chromosomal breakage and rearrangement and which carry an increased risk of malignancy represent an additional link between pre-existing chromosomal abnormality and cancer. (43 refs.) - *J.K. Wyatt.*

1055 DIAMOND, LOUIS K., GERALD, PARK, & BLOOM, GERALD E. Blood groups as gene markers in human genetics. In: National Foundation-March of Dimes. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, p. 51-60.

The determination of some 60 red cell and plasma protein blood groups allows for studies of unaccountable blood group variations in cases of trisomy, translocations and deletions of chromosomes, and for the investigation of gene locations, linkages, and crossovers. Studies of blood group factors in persons with chromosomal abnormalities have been useful in locating genes on autosomal chromosomes. After the group in which a gene is located has been identified, autoradiography can be used to differentiate between chromosomes and further define the specific chromosome which carries the gene. The recent development of "hybrid" cell lines should lead to rapid progress in the location of gene loci on nearly every chromosome. Future advances in this area should allow for vastly improved genetic counseling, the identification of possible predisposing factors, and the prevention of chromosomal abnormalities. (No refs.) - *J.K. Wyatt.*

1056 MELLMAN, WILLIAM J. Collaborative clinical research. *Journal of Pediatrics,* 73(5):807-808, 1968.

To reach valid conclusions, investigators must try to collect and analyze data on autosomal trisomies from several sources. Comparisons of maternal age distribution, frequency of translocation and mosaicism, and survival time of individuals with trisomies 13, 18, and 21 may shed light not only on individual syndromes but also on common factors in the etiology of chromosomal aberrations. (1 ref.) - *E.L. Rowan.*

No address

1057 OHNO, SUSUMU. Maternal influence upon genetic activity of early embryos. In: National Foundation-March of Dimes. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, p. 45-50.

The genetic constitution of the mother appears to affect the early development of an embryo because the rapidly multiplying embryonic cells utilize products stored in her egg cytoplasm. Research on fish, amphibians, and birds indicate that the genes in the nucleus of a fertilized egg appear to be dormant during the initial stages of development and become active as maternal storage is exhausted. A maternal allele is capable of inhibiting the paternal allele for some time after fertilization. If the nuclear activation of the embryo is hemizygous, allowing expression of a recessive deleterious allele in a hemizygote, lasting harm may be caused during early development. The development of a chromosomally normal embryo may be retarded if defective products are stored in the egg cytoplasm of the mother. (9 refs.) - *J.K. Wyatt.*

1058 GERMAN, JAMES. Human chromosomal breakage. *Journal of Pediatrics,* 72(3):440-442, 1968. (Editorial)

Many common infectious agents, X-rays, drugs, and chemicals can cause chromosome breakage and lead to malignancy or abnormality. Cytogenetics, as a science, must be careful in interpretation of chromosome breakage disorders. Careful surveys of large numbers of individuals with chromosome damage are needed as well as data on the usefulness of extrapolating *in vitro* studies to *in vivo* studies. Questions which need answers are: How do agents cause chromosome breakage on a molecular level? Do abnormal genes cause any detectable effect in the heterozygote? and What significance does chromosomal breakage have to cancer, teratogenesis, aplastic anemia, and autoimmunity? (4 refs.) - *V.G. Votano.*

Division of Human Genetics
Department of Pediatrics
Cornell University Medical College
New York, New York 10021

1059 Doubled chromosomes seem more frequent in abortuses: Two "pill" studies. *Journal of the American Medical Association,* 206(3):495, 1968.

Of 26 women who became pregnant within 6 months of discontinuance of oral contraceptives and had spontaneous abortions within 22 weeks of conception,

10 had abortuses with 2 or more sets of homologous chromosomes (5 triploids, 3 tetraploids, and 2 hexaploid-diploid mosaics), while abortuses from a control group (almost no pill-takers) had only 11 polyploids (9 triploids, 2 tetraploids) of 227 abortuses. There was no difference in the types of chromosomal abnormalities in the 2 groups. It is suggested that hormonal alterations occur as a result of a decrease in progesterone following discontinuance of oral contraceptives, and women who conceive within the 6-month period increase their chances of having a polyploid conceptus. (No refs.) - *V.R. Shaffer.*

1060 FDA geneticists raise new doubt on cyclamate. *Medical World News*, 9(46):25-27, 1968.

Cyclohexylamine, a metabolite of cyclamate, causes breaks in significant numbers of chromosomes *in vitro* and *in vivo*. Dosages of 250 mg/kg in rats caused chromosome breakage in 16.5% of cells examined and doses as low as 10 mg/kg produced abnormalities in cells. Important questions to be answered include: What is the cyclamate metabolic site in the body? What percentage of people actually metabolize cyclohexylamine? In what form does cyclamate enter the bloodstream? and What significance do chromosome breaks have for the individual and his progeny? Chromosome breakage may be associated with neoplasia, a shortened life span, and congenital anomalies. (No refs.) - *V.G. Votano.*

1061 SANKAR, D.V. SIVA, ROZSA, PAUL W., & GEISLER, A. Chromosome breakage in children treated with LSD-25 and UML-491. *Comprehensive Psychiatry*, 10(5):406-410, 1969.

There appeared to be no long-term increase in chromosomal breakage in a group of child psychiatric patients treated with LSD-25 and/or UML-491. A group of 15 children received between 37.5 and 168.8 μg of pure LSD-25 daily for periods up to 3 years. Others received LSD-25 in combination with UML-491 or the latter alone. Chromosomal breakage was evaluated 2 to 4 years after termination of drug therapy and based on examination of 100 leucocyte metaphase plates from each patient and non-treated controls. Among children treated with LSD-25 alone, there were 0.80% breaks compared with 0.56% in those treated with UML-491 alone and 1.00% in those receiving a combination of drugs. Control children showed 0.68% breakage and control adults 0.57%. None of these differences is statistically significant on the Fisher *t* test. (13 refs.) - *E.L. Rowan.*

Child Psychiatry Research Unit
Creedmoor State Hospital
Queens Village
New York

1062 HUNGERFORD, DAVID A., TAYLOR, KENNETH M., SHAGASS, CHARLES, LaBADIE, GUNDULA, U., BALABAN, GLORIA B., & PATON, GILLIAN R. Cytogenetic effects of LSD 25 therapy in man. *Journal of the American Medical Association*, 206(10):2287-2291, 1968.

Four patients receiving lysergic acid diethylamide (LSD) as an experimental treatment for conduct disorders were investigated for any chromosomal damage which might occur as a result of treatment. The number of structural abnormalities in cultured leukocytes in 3 of the patients before therapy corresponded to those found in a control group. Comparison was made after each of 3 intravenous doses of LSD (usually 200 μg) given at weekly intervals. In the treatment group, there was an increase in the number of chromosomal breaks, gaps, and acentric fragments, and dicentric and multiradial aberrations were seen only in the treatment group. In 3 of the experimental Ss, the number of chromosome abnormalities had returned to the pre-experimental level one month after the cessation of treatment (the fourth had had occupational exposure to radiation). The transitory nature of induced changes suggested the operation of repair and/or elimination mechanisms to reduce the number of abnormal chromosomes. There does not appear to be a strong contraindication to the continued use of LSD in experimental therapy although the same cannot be said for the consumption of illicit substances purported to be LSD. (26 refs.) - *E.L. Rowan.*

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1063 DiPAOLO, J.A., GIVELBER, HARRY M., & ERWIN, HOWARD. Evaluation of teratogenicity of lysergic acid diethylamide. *Nature*, 220(5166):490-491, 1968. (Letter)

Teratogenic response to lysergic acid diethylamide (LSD) was determined in pregnant mice and hamsters and in hamster cell cultures. Hamsters and mice treated with LSD did not vary statistically from control animals in weight changes in pregnant mothers, in average litter weight and size, nor in resorbed fetuses. Hamster embryo cultures exposed to 1-20 μg LSD for 24-48 hours had cell counts similar to control cultures, and no chromosome breaks were found in 274 metaphases after 24-72 hours exposure to 0.9-45 μg LSD/ml. LSD was not teratogenic in hamsters or mice in this study. (11 refs.) - *F.J. McNulty.*

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Biology Branch, Etiology
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MEDICAL ASPECTS—MISCELLANY

1064 CULLEY, WILLIAM J., & MIDDLETON, THOMAS O. Caloric requirements of mentally retarded children with and without motor dysfunction. *Journal of Pediatrics*, 75(3):380-384, 1969.

For institutionalized MRs, body height can be used to indicate calories needed in diets for ambulatory and nonambulatory 5- to 12-year-olds. To establish a method for estimating the caloric needs of MRs who are short for their age and may have motor dysfunction, moderately to profoundly MRs were divided into 3 groups: ambulatory Ss without motor dysfunction; ambulatory Ss with motor dysfunction; and nonambulatory Ss with motor dysfunction. All children had normal body build, were normal weight for their height, and were well nourished. The calorie consumption of each child was measured and noted with the child's age, height, height percentile, weight, weight percentile, motor dysfunction, calories/height, and calories/weight. Calories consumed/cm of height by the first group were comparable to earlier values found for normal children and those with Down's syndrome. Calorie intake/height in the second group did not differ significantly from the first group regardless of the severity of the motor dysfunction. The last group consumed about 75% fewer calories than either the first or second groups. (12 refs.) - *M. Plessinger.*

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1065 LELORD, G., GOUSSET, A., & HENIN-RIBEYROLLES, D. Interet des methodes de conditionnement electrophysiologique dans l'etude de la debilite mentale (Electrophysiological conditioning in the study of mental deficiency). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 368-376.

The EEG response to sound-light conditioning was examined in 4 normal Ss and 5 MR Ss (3 with IQs of 65-75, 2 with IQs of 45). EEG responses to sound alone and to light alone were the same in both groups, but conditioning was slow, labile, and usually absent in the experimental group. In 114 trials, only 21 correct responses were obtained. The amplitude of the negative potential provoked by the sound before and after conditioning went from 2.6 to 7.8 in the normal Ss, but only increased from 2.2 to 2.9 in the MRs. (15 refs.) - *M.G. Conant.*

1066 NOVIKOVA, L.A., & ZISLINA, N.N. Peculiarities of the electrical activity of the brain in oligophrenia and similar states. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 742-743.

Study of the EEG patterns of 120 MR children (CA 9-16 yrs) showed that patterns were normal in 8% of the children, deviated moderately in 51%, and deviated sharply in 41%. The electrical activity of 107 children with pseudo-oligophrenia was normal in 51%, deviated moderately in 25%, and deviated sharply in 24%. Widespread cortical pathology was noted, especially in oligophrenic children, but occurred in only 9% of the pseudo-oligophrenic patients. EEG with indications of dysfunction of the meso-diencephalic structures was observed in MR children with behavioral disorders, oligophrenia with cerebral-endocrine insufficiency, asthenic syndrome due to craniocerebral trauma, and in certain forms of MR due to anomalies of the sex chromosomes. The dysfunction of non-specific systems at the meso-diencephalic level is reflected in the abnormal EEG patterns in Klinefelter's and Shereshevsky-Turner's syndromes. (No refs.) - *M.G. Conant.*

1067 SHULMAN, KENNETH. Surgical treatment of mental retardation. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 8, p. 177-186.

Surgery may be used to treat conditions of MR caused by infection, trauma, neoplasia, or unknown prenatal and perinatal influences. Surgery is possible in treatment of hydrocephalus, subdural hematomas, and premature suture closures; these conditions, if left untreated, will cause MR. Early diagnosis of surgically corrective conditions is essential, because after the age of 2 years, the brain damage may be irreversible. (14 refs.) - *M. Drossman.*

1068 WALTZ, THOMAS A. Neurosurgery in childhood. *Texas Medicine*, 65(3):66-71, 1969.

The morbidity and mortality of childhood neurological disorders may be significantly reduced by early neurosurgical intervention. Subdural collections of infancy respond to repeated taps or burrhole drainage.

Cranial sutures which close prematurely should be opened within the first 3 months of life. A myelomeningocele should be covered within 48 hours and shunting done for associated hydrocephalus within 2 weeks. Spina bifida occulta requires closure if urological or neurological defects appear. Some cranial neoplasms are amenable to surgical extirpation. A high index of suspicion and a recognition of subtle neurological signs permit neurosurgical intervention in lesions which would otherwise progress to premanent neurological damage. Not only will children with benign lesions be cured, but since children are better able to adapt to residual neurological deficits than are adults, even partial treatment results can be gratifying. (8 refs.) - *E.L. Rowan.*

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1069 RAIVIO, K.O., & TERAMO, K. Blood glucose of the human fetus prior to and during labor. *Acta Paediatrica Scandinavica*, 57(6):512-516, 1968.

In normal and abnormal pregnancies, the mean value for fetal blood glucose levels prior to the onset of labor and during labor was statistically insignificant. The pregnancies included 12 normal Ss, 11 Ss with toxemia, 9 Ss with Rh-immunization, and 10 Ss with prolonged pregnancies. The mean value for the fetal blood glucose levels prior to the onset of labor for all cases was 61.5 mg/100 ml. Blood glucose mean values before birth ranged from 82-114 mg/100 ml for the mother and 61-77 mg/100 ml for the fetus, and during labor, they ranged from 83-102 mg/100 ml for the mother and 60-70 mg/100 ml for the fetus. (23 refs.) - *F.J. McNulty.*

Children's Hospital
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1070 DAHLQVIST, ARNE, & SVENNINGSEN, N.W. Galactose in the urine of newborn infants. *Journal of Pediatrics*, 75(3):454-462, 1969.

Galactose was determined in the urine of normal newborn infants, premature infants and infants with neonatal jaundice by 3 new methods: assay with galactose oxidase; assay with galactose dehydrogenase; and a specific test paper method. The galactose concentration was the same in urine from normal newborn infants and from infants with neonatal jaundice while the galactose concentration in urine from premature infants at 3 to 4 days after birth was lower than that of normal full-term infants. Both premature infants and normal full-term infants had a high galactose concentration in the urine at 8 to 14 days after birth. In the galactose oxidase method, lactose in the urine interferes with the test and the urine must be pretreated by filtration through an ion exchange resin. The galactose dehydrogenase method has the advantage of not requiring such pretreatment. The specific test paper is composed of an adsorption part, which removes interfering substances, and a color reaction part with galactose oxidase. The correlation was greater between the test paper method and the assay with galactose dehydrogenase than between the test paper method and the galactose oxidase assay. Urinary screening for galactose intolerance and galactokinase deficiency should be performed 3 to 4 days after birth. (28 refs.) - *F.J. McNulty.*

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1071 BRAME, R.G., HARBERT, G.M., JR., McGAUGHEY, H.S., JR., & THORNTON, W.N., JR. Fetomaternal exchange of sodium: A possible mechanism of the formation of hydramnios. *Obstetrics and Gynecology*, 32(2):241-248, 1968.

Transport dynamics of amnion and amniochorion for sodium were evaluated in order to demonstrate the possible effect on amniotic fluid volume. Isolated amnion from human term pregnancies was used as a partition between chambers containing Ringer's Tyrode solution (a simulated biological fluid) with radiosodium, and the radioactivity in both chambers was monitored. Segments of amnion from placental and antiplacental surfaces showed the same results, indicating that the amnion does not exhibit secretory capacity for sodium *in vitro*. Sodium moves across the amniochorion in response to a concentration gradient, and there is a net transfer of sodium from maternal tissue to amniotic fluid. This concentration difference, probably from fetal urination and deglutition *in utero*, and sodium transport in response to a concentration gradient support the theory of hydramnios etiology in which impaired fetal swallowing is implicated. (15 refs.) - *M.G. Conant.*

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1072 NISHIMURA, HIDEO, TAKANO, KIICHI, TANIMURA, TAKASHI, & YASUDA, MINEO. Normal and abnormal development of human embryos: First report of the analysis of 1,213 intact embryos. *Teratology*, 1(3):281-290, 1968.

A series of 1,213 intact human embryos was obtained from Japanese gynecologists who performed abortions for socioeconomic reasons during the second and third months of pregnancy. Examination of fixed embryos showed that crown-rump length and weight were more reliable indicators of the state of development than was the clinically established age. Death *in utero* (2.39%) was associated with a history of genital bleeding. The frequency of malformations of the central nervous system, eyes, face, and extremities was understandably increased with advanced developmental age and the frequency of these defects in embryos (1.15%) was higher than that found in newborn infants. Visceral defects were noted in 6 of 9 externally deformed embryos but the specimens were too young to identify malformations of the external genitalia and anal region, or cleft palate or club foot, which are fairly common in infants. (20 refs.)-*E.L. Rowan.*

Department of Anatomy
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1073 CASSADY, G., & BARNETT, R. Amniotic fluid electrolytes and perinatal outcome. *Biologia Neonatorum*, 13(3-4):155-174, 1968.

One hundred eighty-six amniotic fluids were examined in conjunction with the supervision and management of 115 complicated pregnancies over a 2-year period. Amniotic fluid electrolyte composition was correlated with the gestational age at time of sampling and with the ultimate perinatal outcome. A linear decline of amniotic fluid osmolality, sodium, and chloride was observed to characterize successful gestations. In contrast, unsuccessful pregnancies terminating with perinatal death were most often accompanied by an elevation and serial rise of the amniotic fluid solutes. (32 refs.) - *Journal summary.*

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1074 DANIEL, SALHA S., & MORISHIMA, HISAYO O. Relationship between acid-base composition amniotic fluid and the clinical condition of the newborn guinea pig. I. Influence of maternal carbon dioxide tension. *American Journal of Obstetrics and Gynecology*, 102(4):578-584, 1968.

Forty-two pregnant guinea pigs, near term, were divided into 5 groups according to maternal arterial carbon dioxide tension at delivery (severe or mild respiratory alkalosis, normal, mild or severe respiratory acidosis) and, after 10 minutes on the experimental regimen, amniotic fluid was aspirated and analyzed, as were samples of maternal and fetal blood. Changes in maternal acid-base balance were accompanied by similar changes in the fetus, except in cases of severe maternal hypocapnia, where severe fetal respiratory and metabolic acidosis were produced. The acid-base status of the amniotic fluid is more influenced by fetal than by maternal changes and no change in the clinical condition of the newborn guinea pig accompanied moderate changes in maternal carbon dioxide tension. Severe maternal hypocapnia resulted in a higher incidence of fetal depression than did severe hypercapnia. The amniotic fluid contained less lactate and bicarbonate and more hydrogen and chloride than did maternal or fetal blood. (24 refs.) - *M.G. Conant.*

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1075 PROD'HOM, L.S. Rules of evidence applied to treatments of neonatal hypoxemia and acidosis, *Pediatrics*, 42(4): 563-564, 1968.

The type and severity of pulmonary involvement in neonates should be noted in assessing results of controlled therapeutic trials. The natural history of the disease and the infant's gestational age should also be considered. It appears that assisted ventilation may be applicable at a late stage of lung disease, but not earlier. The need for more systematic studies of this type is stressed. (2 refs.) - *M.G. Conant.*

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1076 SINCLAIR, JOHN C., ENGEL, KNUD, & SILVERMAN, WILLIAM A. Early correction of hypoxemia and acidemia in infants of low birth weight: A controlled trial of oxygen breathing, rapid alkali infusion, and assisted ventilation. *Pediatrics*, 42(4):565-589, 1968.

The effects of unlimited oxygen, rapid sodium bicarbonate infusion, and/or assisted ventilation on 20 low birth-weight (1,000-2,500 gm) infants (with 20 receiving each of the experimental therapeutic modalities) were assessed by evaluating clinical, physiologic, and radiologic observations, mortality during the first week of life, and neurologic follow-up (in progress). Initial examinations within the first 24 hours of life revealed a negative correlation ($r = -0.402$) between blood pH and calculated percent right-to-left shunt, while measurements 2 hours later showed increased alveolar oxygen tension due to reduced right-to-left shunt. This effect was not modified by alkali administration or assisted ventilation. Four infants died during the 168-hour study period (3 from hyaline membrane disease and one from internal hemorrhage) and 4 died later (at 8-19 days of age) with evidence of pulmonary inflammation and/or infection. Seven deaths occurred in the 10 infants receiving assisted ventilation versus one death in 10 in the unassisted group. No correlation was found between attempted early correction of arterial oxygenation or acid-base balance and infant mortality within the first week of life. The severity of hyaline membrane disease was found to be better identified by the magnitude of the oxygenation defect than by pH, carbon dioxide tension, or bicarbonate concentration. (30 refs.) - *M.G. Conant.*

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1077 RICKENBACHER, J. The importance of the regulation for the normal and abnormal development: Experimental investigations on the limb buds of chick embryos. *Biologia Neonatorum*, 12(1-2):65-87, 1968.

Electrocoagulation of embryonic chick limb buds resulted in no permanent abnormality in 80 to 90%, an indication that damage to an embryo is not necessarily irreversible. The right wing and leg limb buds were coagulated at 96 hours incubation, which corresponds to a 30-day human gestation period. While an initial cystic lesion formed, it had disappeared within 48-72 hours in most embryos. Fourteen of 59 embryos showed one or more hypoplastic malformations of the right extremities. Microscopically there was a necrotic area which was revascularized, encircled within 24 hours by normal endothelium, and in most cases, this cystic lesion was transported to the limb bud surface where it lay in the future skin area and away from the developing skeletal and muscular tissue. Those embryos which had

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lesions that did not migrate developed limb defects. The necrotic tissue was removed by blood vessels which grew into it; usually this tissue was then transported to the yolk sac and allantois where it liquified without difficulty. Some of this tissue passed into the brain where the small blood vessels were occluded and cerebral developmental lesions resulted. Total repair of damaged limb buds depends upon the blood vessel arrangement and the proliferation capacity of the remaining normal blastema. Anything which interferes with these elements during the regulator determination phase of embryonic organ development will result in a malformation. Furthermore, the extent of repair varies from one organ to another because of differences in regulatory power. Finally, the blockage of blood vessels in distant parts of the body by the necrotic particles could cause secondary lesions more severe than the initial one, and human lesions could be the result of such a healing process. (41 refs.) - *E. Gaer.*

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DEVELOPMENTAL ASPECTS—PHYSICAL

1078 RUNDLE, A.T., & SYLVESTER, P.E. Environmental influences on growth patterns in the mentally subnormal. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 853-856.

The relationship between stature, father's occupation (social class), and sibship size was determined for 121 MR children (66 girls, 55 boys; CA 7-16 yrs). Both sexes from social classes I and II were significantly taller than those from classes III, IV, or V. Sibship size had no effect on height. Comparison of this data with previously published data showed that the contribution of height reduction due to social origins would be 2.0 cms at 11 years for both sexes. (16 refs.) - *M.G. Conant.*

1079 ROCHE, A.F. Difficulties associated with studies of growth and development in mentally retarded children. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 845-852.

Studies of growth and development of mongoloid children revealed that mean statures and head lengths increased more rapidly than those of normal children between birth and age 2 years and between 6 and 10 years of age. For the same groups of children, the mean rate of skeletal maturation, as measured radiographically, was slower in mongoloids before birth and until the age of 3.75 years, and then more rapid than normal until 10 years of age. The individual bones of the hand and wrist varied more than normal in skeletal maturity in mongoloids and were closely associated with skeletal elongation and maturity. Statistical analyses of growth studies are difficult because of problems involved: in the selection of 2 groups which would correspond in everything but the presence or absence of mongolism; the possibility of multiple types of mongolism; and the presence or absence of racial origin, illness experience, food intake, birth order, and environmental factors. (26 refs.) - *M.G. Conant.*

1080 SOLOMON, AMIEL H. Motivational and repeated trial effects on physical proficiency performance of educable retarded and normal boys. In: *IMRID Behavioral Science Monograph Number 11*, Nashville, Tennessee, Institute on Mental Retardation and Intellectual Development, 1968, 157 p.

A comparison of the effects of 3 different motivational incentives on the motor behavior of institutionalized (mean CA 15 yrs 4 mos; mean MA 8 yrs 3 mos; mean IQ 60.37) and public school (mean CA 15 yrs 6 mos; mean MA 10 yrs 2 mos; mean IQ 69.41) EMR and normal (mean CA 15 yrs 4 mos; mean MA 15 yrs 2 mos; mean IQ 102.14) boys disclosed that the type of motivational incentive had an important effect on the performance of all Ss. There were no significant between-group differences for CA. The mean IQ of public school EMRs was significantly superior to that of institutionalized EMRs. Performances elicited under the motivational incentive conditions of continuous verbal encouragement and continuous verbal encouragement plus material reward (CVEMR) were superior to those observed under the basic motivation condition for all Ss. The CVEMR condition was the highest motivational incentive for both EMR groups, and the performance of institutionalized EMRs was superior to that of public school EMRs for this condition. Motor behavior items included the standing broad jump, the shuttle run, the bent-arm hang, the 50-yard dash, and softball throw. This study suggests that EMRs are responsive to material reward, especially when it is accompanied by verbal encouragement. (42 refs.) - *J.K. Wyatt.*

1081 DONOGHUE, ELAINE C., KIRMAN, B.H., LABAN, D., & ABBAS, A. Age of walking in the mentally retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 754-759.

Of 336 SMRs (CA 0-15 yrs; IQ below 60), 175 could walk, and 161 could not walk 2 steps without support. There were 70 cases of Down's syndrome, 129 of CP, and 137 of unknown etiology. The number of walkers in these 3 groups were 56, 11, and 108, respectively,

and mean ages in years of starting to walk were 3.2, 5.3, and 4.2, respectively. Nearly all who were able to walk did so by the age of 7 years. There was a positive relationship between age of learning to walk and IQ. All patients with IQs above 50 learned to walk before 4 years of age. In the absence of a specific motor disability, TMRs are almost certain to learn to walk, as will the majority of SMRs. (1 ref.) - *M.G. Conant.*

1082 KEOGH, JACK F. Incidence and severity of awkwardness among regular school boys and educationally subnormal boys. *Research Quarterly*, 39(3):806-808, 1968.

The incidence and severity of physical awkwardness in 58 normal and 40 mildly MR (IQ range 51-77), 9- and 10-year-old boys were studied. None of the Ss had physical limitations. Six performance tests representing a variety of physical tasks were given to each S: beam balance, beam walk, 50-foot hop, standing broad jump, alternate foot hopping, and simultaneous foot-finger tapping. Standardized scoring procedures were used. Retarded Ss were retested on failed tasks and the higher of the 2 scores reported. Normal Ss exceeded MRs on all tasks. Data on normal Ss were used to determine the limits of low (below tenth percentile) and marginal (between tenth and thirtieth percentile) marks. MR Ss had proportionately more than 3 times as many low and twice as many total (low plus marginal) marks. When low and marginal marks on 4 of the 6 tests were used as criteria for awkwardness, 19% of the normals and 50% of the retardates were identified as awkward. (6 refs.) - *J.M. Gardner.*

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1083 MORDOCK, JOHN B., & DeHAVEN, GEORGE E. Movement skills of children with cerebral dysfunction: The role of the physical therapist. *Rehabilitation Literature*, 30(1):2-8, 1969.

Studies which describe movement deficits in children with minimal cerebral dysfunction indicate that these children have major problems in receiving and integrating environmental information and in coordinating responses to the environment. Exercises designed to enhance body-hand image, locomotor abilities, visual-motor ability, hand-eye, body-eye and foot-eye integration, and balance aid greatly in the development of perceptual motor skills. Children with perceptual handicaps, reading problems, and learning disorders may have movement awkwardness and poor gross and fine movement sensitivity. These children represent examples of minimal CP and can benefit from treatment by physical therapists. To meet the needs of children with brain dysfunction, remedial programs should provide active exercises which contain different stages of complexity, additional sensory stimulation from one or more sources, and exercises which require movement of more than one extremity or joint at a time. (44 refs.) - *B. Parker.*

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1084 WEDELL, KLAUS. Perceptual-motor difficulties. *Special Education*, 57(4):25-30, 1968.

Perceptual-motor impairment affects sensation and motor organization and limits discrimination abilities. Even when the component functions of perceptual and motor organization are intact, sensory, motor, attentional, and conceptual performance may be impaired. Studies of impaired perception show that some children have marked impairment of visual, auditory, and tactile perception as well as impaired perceptual analysis. Reading achievement can be affected by adequacy of visual and auditory perception, and arithmetic achievement may be difficult for children with perceptual impairment. One of the most commonly observed discrepancies in perceptual-motor achievement is a difference between the level of perception and the level of motor organization. Impairment in motor organization has been demonstrated in pattern copying, writing, the setting out of sums, and speed of writing. Inadequate development of a body image may affect both motor and perceptual organization, may evidence itself in writing reversals and incorrect movements, and has been found to be a major cause of maladjustment in some children. Severe perceptual impairment can severely limit the use which a child may make of his sensory experiences. Early awareness of perceptual-motor impairment allows for early remediation. (39 refs.) - *J. King.*

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1085 HIGGINS, KENT E. Vision and touch in normal and retarded subjects. *California Mental Health Research Digest*, 7(2):79. 1969.

The hypothesis that retarded Ss are delayed in the developmental shift to visual dominance and that there is a tendency to resolve conflicts between visual and tactual perceptions by reliance on the tactual mode was tested using 36 normal and 30 retarded females. While the hypothesis was substantiated, there is recent evidence that this shift (from tactual to visual dominance) is not a developmental phenomenon. (No refs.) - *J.M. Gardner.*

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1086 DeLORENZO, ELOISA GARCIA ETCHEGOYHEN. Investigation on spontaneous development and development in a group of subjects studied from birth. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 323-329.

A planned investigation of the influence of early, regular, sequential sensory stimulation on the maturation of the CNS is described. Newborn babies will be separated into low-risk and high-risk groups on the basis of genetic, gestation, labor, delivery,

socioeconomic, newborn condition, birth-weight, and morphology data. Each group will be subdivided into 2 groups. One group will receive enriched multisensory stimulation and rich environmental stimulation in the home and classroom. The other group will receive normal stimulation in the home and classroom. The hypothesis that the development of a sequential series of stimuli is an important factor in promoting better development of high-risk babies will be tested. Stimulation, of an undetermined type, will be initiated at one day of age. (1 ref.) - *M.G. Conant.*

1087 DeGRIGNON, LAMOTE C. La fonction du systeme nerveux etudiee dans son aspect evolutif (Developmental aspects of nervous system function). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 896-899.

All behavior observed in the infant during the first year of life is a temporo-spatial manifestation of central nervous system (CNS) function. This function, which is determined by maturation, produces adaptation through a continuous developmental process. Examination of the CNS in its developmental aspects can aid in the early diagnosis and treatment of infantile encephalopathies. (8 refs.) - *M.G. Conant.*

1088 FERNANDEZ-ALVAREZ, E. Caracteristiques morpho-evolutives des reactions archaiques chez des nourissons eleves en milieu oligostimulant (Morpho-developmental characteristics of primitive reflexes of infants raised in an unstimulating environment). In: Richards, B.W., ed. *Proceedings of of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 900-902.

The age of disappearance of 4 primitive reflexes (Moro, grasping, automatic walking of newborns, and sucking) was determined in 800 non-brain-damaged infants raised in the unstimulating environment of an orphanage. The Moro reflex disappeared at 8 months of age and the grasping reflex at 6 months in the unstimulated group compared with 3-4 months and 2 months, respectively, in infants in normal, stimulated environments. The disappearance of automatic walking and the sucking reflex was chronologically identical in both groups. Delay in cephalic control is probably due to the minimal stimuli received by orphanage Ss. (8 refs.) *M.G. Conant.*

1089 PONCES-VERGE, J. Role des reflexes innes dans le developpement de l'organisation motrice chez l'enfant (Role of innate reflexes in the development of motor control in the infant). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 903-904.

The persistence of neonatal reflexes has different consequences for each reflex. For example, while persistence of the Moro reflex is compatible with the acquisition of trunk control and the sitting position, the persistence of the grasping reflex is incompatible with the acquisition of prehension. Some motor functions have an innate reflex as their point of departure in the learning process, and some reflexes are closely connected with psycho-affective development. Primitive tonic activity sometimes persists and is observed in emotional situations. (8 refs.) - *M.G. Conant.*

1090 TIZARD, BARBARA. Studies of severely subnormal overactive children. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 270-275.

Independent ratings of 46 institutionalized, SMR children (CA 8-10 yrs; MA 18-24 mos) by 2 teachers and 2 nurses were used to select an experimental group of 5 boys and 5 girls, rated very overactive, and a control group of 11 SMR children, rated not overactive. Observations of each child's activities indicated that the children rated overactive were significantly more active than the control group and that overactive children made and received fewer friendly contacts. The overactive group had a greater tendency for a history of epilepsy, postnatal trauma, positive neurological signs, later hospital admission, and more frequent ward transfers in the hospital. The children were then observed for 5 minutes on 4 consecutive days in an unfamiliar room. On 2 occasions the room was empty except for a research assistant, and on 2 occasions several new toys were in the room. There was no significant difference between the activity levels of the 2 groups, and neither group evidenced habituation in the experimental situation. (1 ref.) - *M.G. Conant.*

DEVELOPMENTAL ASPECTS—MENTAL

1091 GORDON, JOHN E., &*HAYWOOD, H. CARL. Input deficit in cultural-familial retardates: Effect of stimulus enrichment. *American Journal of Mental Deficiency*, 73(4):604-610, 1969.

Cultural-familial and organic retarded patients were given similarities tests under the standard Wechsler procedure (2 stimulus words) and under stimulus enrichment (5 stimulus words). Cultural-familial Ss improved their verbal abstracting scores under the enriched condition, while organic Ss did not improve. A third group of non-retarded institutionalized Ss got both tests, but did not improve under stimulus enrichment. The results support the notion that cultural-familial retardates have a deficit in information input channels which masks their verbal abstracting ability. (18 refs.) - *Journal abstract.*

*Box 90
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1092 VOGEL, WILLIAM, KUN, KAROLY J., & MESHORER, EDWARD. Effects of environmental enrichment and environmental deprivation on cognitive functioning in institutionalized retardates. *Journal of Consulting Psychology*, 31(6):570-576, 1967.

The differential effects of inclusion in an institution school program on 2 groups of 48 MR Ss were examined by use of gains and losses in IQ as the dependent measure. The Ss were matched on age, sex, diagnosis, and admission IQ and MA. After 4 years, school Ss had significantly higher (.001) IQs than non-school Ss; however, differences were due to a decline in IQ for non-school Ss (mean loss 9.6 points) rather than to an increase for school Ss (mean gain 1.4 points). For school Ss, greatest IQ gains were made by initially low IQ Ss. For non-school Ss, fewer parent contacts and organic etiology were related to greatest IQ losses. A cross-sectional, year-by-year analysis of 214 MRs indicated a general decline in IQ scores. However, large individual differences were noted during the first 2 years of institutionalization. Ss who made large (more than 10 points) gains during this time had initially lower IQs. The results of both studies suggest that reinforcement procedures may be used to develop behavior norms in the school and on the ward. If such norms exist, they could subsequently lead to the changes observed. (17 refs.) - *J.M. Gardner.*

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1093 ROSENBERGER, PETER B., MOHR, JAY P., STODDARD, LAWRENCE T., & SIDMAN, MURRAY. Inter- and intramodality matching deficits in a dysphasic youth. *Archives of Neurology*, 18(5):549-562, 1968.

The characteristics of verbal impairment were investigated with automated sample-matching techniques (visual, auditory, and tactile modalities) in a boy (CA 14) who had suffered occlusion of the left middle cerebral artery with subsequent hemiplegia and dysphasia. Loss of the dominant left hemisphere was associated with an unusual language defect wherein the boy could respond to words but not to individual letters. Striking deficits in writing dictated letters and in auditory-visual matching of words other than nouns were attributed to involvement of the dominant hemisphere. Apparent preservation of the right hemisphere alone allowed the patient to accomplish visual-visual matching of letters, numbers and words; tactile-visual matching of objects, words, and letters; auditory-visual matching of picture nouns; and copying visually-presented letters, numbers, and words. Sequences of verbal labels are apparently "coded" in the dominant hemisphere while non-verbal associations may be mediated by the minor hemisphere. (19 refs.) - *E.L. Rowan.*

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1094 HAYWOOD, H.C. Psychometric motivation and the efficiency of learning and performance in the mentally retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 276-283.

Motivational variables that interact with intelligence produce individual differences in learning and performance. Learning studies with 4 groups of children (high or low IQ intrinsically or extrinsically motivated) showed that individual motivational orientation exerted a stronger influence on the performance of low IQ students than on high IQ students. In another experiment, no differences in relative motivational orientation between overachievers and underachievers in the superior IQ range were found, but in EMRs, overachievers were much more intrinsically motivated than underachievers. Other studies have shown that the effects of motivational orientation are evident as early as the sixth year and are more pronounced in complex tasks such as school learning than in simple laboratory tasks. (10 refs.) - *M.G. Conant.*

1095 BRYANT, P.E. Selective attention and learning in severely subnormals. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 264-269.

Two SMR groups (mean MAs 5.1 and 6.5 yrs) and 2 normal groups (mean CAs 5.0 and 6.6 yrs) learned to discriminate between cards differing either in shape and color or in shape and size. Ss then learned a transfer task with either the same dimension relevant in both the initial and transfer tasks or with one dimension relevant in the initial task and the other dimension relevant in the transfer task. Only normal Ss of CA 6.6 years were able to transfer information about the relevant dimension. MR Ss were able to transfer information about the stimulus dimensions (not related to the relevant dimension), which may be related to an orienting response. The groups also learned initial tasks in which the relevant discrimimanda had both a characteristic area and a characteristic dimension and transfer tasks in which either the dimension or the area differed, both the dimension and the area differed, or both the dimension and the area were the same. Only older normal Ss transferred information about the stimulus dimension relevant in the initial task. MR Ss and younger normal Ss transferred information primarily about the area. (1 ref.) - *M.G. Conant.*

1096 PEARSON, DOUGLAS. Object-discrimination learning set acquisition in young cerebral palsied children in relation to tested and rated intelligence. *Journal of Consulting and Clinical Psychology*, 33(4):478-484, 1969.

The performance of CP children "rated non-retarded" (mean IQ 67) was on a par with that of nonhandicapped normal children (mean IQ 103.5) in object discrimination tests. Learning for these Ss was significantly better than for nonhandicapped MR children (mean IQ 61) or for MR CP children (mean IQ 60). All Ss were 2 to 3 1/2 years old. A fixed-trial regime was used to present 40 object-discrimination learning-set problems to each S, and a prearranged random sequence was used to vary the left-right position of the reward object from trial to trial. Capacity for this type of learning appeared to be positively related to MA or IQ. Nonhandicapped MRs did not show any degree of learning; a factor which may be due to the small number of problems used in the study. Task satiation and deficits in attention appeared to disrupt the learning-set performance of a few Ss in each group. The results indicate that it is possible to measure the ability to form object-discrimination learning sets in children whose handicaps interfere with IQ measurement. (24 refs.) - *J. King.*

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1097 BRYANT, P.E. Practical implications of studies of transfer. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 865-868.

The practical implications of experimental information are a sole function of the pattern of the results. For example, an experiment with MR involving abstracting ability using 2 discrimination tasks, with verbal instruction given to 1/2 the Ss for one task and for neither task to the other 1/2, showed that information transfer was impeded by verbal instruction. In a second experiment, Ss were required to sort 2 colors into different boxes. Errors were equally distributed between the 2 colors when no instruction was given and when instructions about both colors were given, although there were fewer errors in the latter case. When instructions concerning only one color were given, fewer errors were made in placing that color. MR Ss made more errors in placing a novel color when it was used later with a familiar color, suggesting that they tend to learn the 2 responses separately and that instruction about one response has little effect on the other. (6 refs.) - *M.G. Conant.*

1098 DREW, CLIFFORD J., & ESPESETH, VERNON K. Transfer of training in the mentally retarded: A review. *Exceptional Children*, 35(2):129-132, 1968.

Ability of MRs to transfer training is more efficient when training is initiated at young age and is greater when transfer takes place between similar tasks. Transfer is greatest when tasks are meaningful. Verbal instruction tends to impede transfer. MRs differ from normal children in that the MRs transfer negative learning more easily than positive learning. The use of meaningful and similar initial learning and transfer tasks, and their use in general and varied training situations will maximize transfer of training in MRs. (19 refs.) - *V.G. Votano.*

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1099 FAGAN, JOSEPH F., III. Short-term memory processes in normal and retarded children. *Journal of Experimental Child Psychology*, 6(2):279-296, 1968.

An investigation of short-term memory processes in 13 noninstitutionalized EMRs with no emotional problems (mean IQ 73.9; mean MA 104.2 mos; mean CA 142.5 mos) and 13 normal children (mean IQ 102.1; mean MA 104.4 mos; mean CA 102.5 mos) used a series of 24 nonrepeated 5-digit sequences for multiple immediate- and delayed-recall tests. A series of 6-digit messages under the same recall conditions were used with an additional group of 13 normals (mean IQ 102.5; mean MA 104 mos; mean CA 101.2 mos) in an attempt to match the acquisition level of MR Ss. MRs were deficient in both item and ordered recall. There were no differences between normals and MRs in retention slope on item recall, and MRs evidenced a tendency toward

retention slope superiority on ordered recall. The assumption that MRs are deficient in immediate recall appeared to be verified, while the hypothesis that MRs are inferior in retention was not supported by the findings of this study. (14 refs.) - *J. King.*

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1100 GALLAGHER, JACK R. A comparison of retarded and normals on subjective organization in short-term memory. *American Journal of Mental Deficiency*, 73(4):661-665, 1969.

Twenty-five EMR and 25 normal Ss (CA 13-14) participated in a free recall task. Each S was presented a list of 12 monosyllabic nouns at 2-second intervals. Each word appeared in each serial position only once and was preceded and followed by each other word only once. Normal Ss recalled significantly more words correctly but exhibited no greater subjective organization scores than did retarded Ss. These findings were suggestive of a difference between retarded and normal adolescents in storage capacity of short-term memory. (13 refs.) - *Journal abstract.*

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1101 COBB, JAMES H., & BARNARD, JAMES W. The differential effects of implicit associative values on the short term recall of normals and retardates. *IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports*, 5(12):1-47, 1968.

A comparison of the effects of the associative value of categorized words on the short-term free recall performance of 20 normal Ss (mean IQ 114) and 20 institutionalized MR Ss (mean IQ 57) disclosed that normals recalled significantly more than MRs ($p<.001$), the recall performance of both IQ groups increased significantly as the associative value of words increased ($p< .001$), and the performance of MRs was closer to that of normals when the associative value of word lists was highest. Mean CA for all Ss was 13.3 years. Five word lists, each of which contained 12 familiar words, were constructed to represent varying degrees of associative organization. All Ss received pretraining on 2 lists containing 6 words each until a required criterion was reached. The 5 experimental lists were then presented by tape recorder. After each list was played, Ss verbally recalled as many words as they could remember. The increased recall performance as associative value increased, was due largely to the increased recall ability of MR Ss. The performance of normal Ss on lists of unrelated words was almost as good as on lists of related words. (49-item bibliog.; 22 refs.) - *J.K. Wyatt.*

1102 KNIGHT, MARCIA SEWARD. The effects of inter-trial interval duration on short-term retention of a two-choice visual discrimination task by retarded children. *Dissertation Abstracts*, 28B(8):3494-3495, 1968.

Inter- and intra-trial intervals were used with miniature experiment techniques in which 16 different 3-trial form discrimination problems were presented to MRs (MA 6- 8 yrs) daily for a 16-day period. Long inter-trial intervals were associated with poor intra-problem performance. Retention loss was greatest for the third trial when a longer inter-trial interval counteracted the incremental effect of additional training. Although a facilitation effect of spacing was present for the inter-problem interval for trials 2 and 3, it was not reliable. Proactive interference effects were evident in that performance on the first problem of the day was superior to that on succeeding problems. (No refs.) - *J.K. Wyatt.*

No address

1103 MILGRAM, NORMAN A. The effects of MA and IQ on verbal mediation in paired associate learning. *Journal of Genetic Psychology*, 113 (Part 1):129-143, 1968.

The relationship of MA and IQ variables to verbal mediation was investigated by employing the paired-associate learning paradigm on groups of retardates and normal children. Ss included 20 Negro children (mean CA 4.4 yrs), from upper-lower and lower-middle class families, 20 additional children (mean CA 7.7 yrs), the majority of whom were Negro and of a somewhat higher socioeconomic status, 20 institutionalized TMRs (CA range 11-20 yrs; MA range 4 yrs 6 mos to 6 yrs 9 mos), 20 institutionalized EMRs (CA range 13-14 yrs; MA range 6 yrs 6 mos to 10 yrs 5 mos; mean IQ 58), and a group of EMRs (EMR-D) who were in public school special education classes (mean CA 11.9 yrs; mean MA 8.5 yrs; mean IQ 77). All groups except the EMR-D group were placed in E and C subgroups matched on CA and MA. The EMR-D group was used only in the experimental condition. Three consecutive paired-associate lists which included pictured items under mediation and control conditions were administered. The magnitude of mediation effect was greatest with repetition of prearranged sentences, less when Ss constructed their own sentences, and lowest when Ss were left to their own devices for sentence formation. When MA was held constant, and IQ decreased, mediational facilitation was reduced. When IQ was constant, there were similar results for lower versus higher MA groups. Neither the qualitative nor quantitative aspects of sentences appeared to be related to efficacy of mediation within groups. (17 refs.) - *B. Bradley.*

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1104 NEWFIELD, MELANIE U., & SCHLANGER, BERNARD B. The acquisition of English morphology by normal and educable mentally retarded children. *Journal of Speech and Hearing Research*, 11(4): 693-706, 1968.

A list of lexicon words which paralleled phonologically and morphologically the nonsense words used by Berko were used to study variables influencing the learning of English morphology by EMR and normal children. Ss were institutionalized MRs (mean CA 10 yrs 4 mos; mean MA 6 yrs 2 mos; mean IQ 60) with adequate articulatory skills and normals (mean CA 6 yrs 10 mos) chosen at random from kindergarten, first, and second grades of an elementary school. The Peabody Picture Vocabulary Test was administered to all children. Results showed that MR children learn morphology just as normal children do, but at a slower rate. Major differences appeared to be of a quantitative type since the order of acquisition of allomorphs used in morphology was very similar. The major problem area for MRs seems to be in their ability to generalize from familiar to new words. Both groups seemed to operate within delimited morphological rules. MA was of more importance than CA and normal children performed better on all measures of morphological development. Effects of institutional environment were discussed, in brief, since MA was not the only factor implicated in the morphological differences between the 2 groups. (7 refs.) - *B. Bradley.*

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1105 O'CONNOR, N., & HERMELIN, BEATE. Verbally coded recall in subnormals. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 720-723.

Twenty normal children (mean CA 8 yrs 9 mos) were evenly divided into 2 matched groups, each of whom was matched with an MR group (IQ 70; mean reading age about 9 yrs). Each S was presented with one word orally and one word visually from either a high- or low-association list of 18-word pairs. After presentation of 3-word pairs, Ss were asked for written or spoken recall. For all groups, auditory presentation was superior to visual presentation and cross-modal conditions did not aid recall. MRs switched from visually to auditorially presented items in both word lists, while normals switched only in the related word list. The shifts of MR Ss were independent of linguistic significance. Auditory presentation appeared to promote both spoken and written recall; however, MRs tended to recall more visually presented material. (12 refs.) - *M.G. Conant.*

1106 HERMELIN, BEATE. Immediate verbal recall in autistic children. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 499-501.

When groups of autistic, subnormal, and normal children were asked to repeat a series of 4 words in either random or sentence form, the autistic children had higher overall recall scores and did better with sentences of infrequent words and random series of frequent words than the other groups. Normal and MR children had better recall with sentences than with non-sentences. Sequences of 8 words which could be regrouped and recalled through clustering were presented to the same 3 groups, and regrouping according to categories occurred significantly less often with autistic children. Presentation of 8-word messages, containing either 2 sentences or one sentence and a random 4-word message, indicated that autistic children tend to read back words more from an immediate memory store, as they tended to recall the latter part of the message. This was less evident with visually presented material. Autistic children do not appear to be impaired in their appreciation of phonological structure. (No refs.) - *M.G. Conant.*

1107 LOCKE, BILL J. Verbal conditioning with the retarded: Reinforcer, sex of subject, and stimulus pacing. *American Journal of Mental Deficiency*, 73(4): 616-620, 1969.

Mild and moderately retarded Ss with whom prior verbal conditioning attempts had been unsuccessful were exposed to variations in the reinforcing consequence and the pattern of presenting stimulus materials with separate replications for male and female Ss. Using a Taffel-type task, the reinforcing properties of the social consequence "good" were compared with tokens exchangeable for money or a variety of trinkets in factorial combinations with a fixed versus a variable rate of stimulus exposure. Extensive verbal conditioning effects were obtained with tokens but no significant effects were associated with the social reinforcement, sex of subject, or stimulus exposure rate. (14 refs.) - *Journal abstract.*

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1108 LOCKE, BILL J. Verbal conditioning with retarded subjects: Establishment or reinstatement of effective reinforcing consequences. *American Journal of Mental Deficiency*, 73(4):621-626, 1969.

This experiment represented a sequel to several unsuccessful attempts to condition the verbal behavior of mild and moderately retarded Ss under social reinforcement, i.e., the examiner statement "good." A Taffel-type verbal conditioning task was preceded by

preconditioning treatments in which the presence or absence of monetary-based tokens were combined with "good" presentations programed in either the same response-contingent manner as tokens or in inverse relation to token delivery. Conditioning via "good" consequences was greatly enhanced by both direct and inverse association of the 2 classes of reinforcement, but some conditioning also occurred with no prior token association. (4 refs.) - *Journal abstract.*

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1109 OHLRICH, ELIZABETH S., & ROSS, LEONARD E. Acquisition and differential conditioning of the eyelid response in normal and retarded children. *Journal of Experimental Child Psychology*, 6(2):181-193, 1968.

Classical eyelid conditioning procedures were used to study single-cue acquisition, differential conditioning, and differential-conditioning reversal performances of normal and MR children of the same MA (84 mos). Ss were 32 MR children (mean CA 159 mos) and 32 normal children (mean CA 83 mos). The conditioned stimulus (CS)-unconditioned stimulus intervals were 500 and 800 milliseconds, and the CSs were 800 and 2,500 cycles/second tones at 75 db SPL. Both MRs and normals responded differentially to the conditioning, but only normal 800 millisecond Ss evidenced a learned discrimination. These results and those obtained with other populations suggest that differential conditioning and reversal processes are present in decreasing degree in college adults, normal children, and MRs. The investigation of the differential effects of conditioning parameters on the conditioning performance of IQ populations is a more important issue than the comparison of the general "conditionability" of normal and MR children. (12 refs.) - *J. King.*

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1110 MONACO, MARY THERESA. An analysis of operant conditioning and learning in severely retarded children. *Dissertation Abstracts*, 28A(8):3077-3078, 1968.

Assessment of the developmental status of SMR children over a 6-month period and of the feasibility of using operant conditioning techniques with them revealed that Ss enrolled in a skill development day training program tended to learn more skills than Ss who remained at home, and when schedule and type of reinforcement were considered, operant conditioning was a feasible behavior modification technique. Ss were 12 SMR children (CA 8-12 yrs) enrolled in the Child Development Day Activity Center and a control group of 12 SMR children matched on CA, MA, and social age, who remained at home. Developmental status was evaluated before and after a 6-month period. In the operant conditioning experiment, verbal, verbal-physical, or nutrient-verbal reinforcement was administered under continuous-intermittent and fixed ratio-5 schedules of reinforcement. When nutrient-verbal reinforcement was administered on a continuous-intermittent schedule, there was a general increase in appropriate response rate for 11 Ss. Group analysis of appropriate responses revealed that schedules, kinds, and schedules X kinds of reinforcement were significant (.05 level) for 9 Ss. (No refs.) - *J. King.*

No address

1111 KORST, JOSEPH W., & IRWIN, ORVIS C. Verbal and numerical immediate memory spans of mentally retarded children. *Cerebral Palsy Journal*, 29(4):3-5, 1968.

Immediate verbal and numerical memory spans of 231 MR children (CAs 6-16 yrs; IQs below 75) and of 523 normal children (grades 4-7) were analyzed to determine sex differences, age trends, and significant differences between verbal and numerical memory. The Digit Span Test from the Wechsler Intelligence Scale for Children, the Wet Fall Test from the Stanford-Binet Intelligence Scale, and the Lost Boy Test(a supplement to the Wet Fall Test) were used. There were no sex differences, but memory span scores according to both CA and MA showed curvilinear trends. Verbal and numerical memory span scores differed significantly at MAs of 2-3 and 4-5, but not at greater MAs or at any CA. The mean score of the normal Ss was about twice the highest mean score of the MR Ss. (3 refs.) - *M.G. Conant.*

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1112 JACHUCK, KASTURI, DUTTA, TAPTI, &*DAS, J.P. Age, stimulus, meaningfulness and semantic satiation. *Indian Journal of Mental Retardation*, 1(1):20-28, 1968.

Effects of age and stimulus meaningfulness or semantic satiation were studied. In one experiment, 30 male students from 3 age levels (CAs 7-9, 13-14, 19-21) rated 5 words on 3, 7-point bipolar scales and then repeated and rerated each word as quickly as possible. Semantic satiation scores were obtained by subtracting the absolute value of pre-satiation ratings from post-satiation ratings. Adults had higher satiation scores than adolescents or children, who did not differ. Test-retest consistency was highest for children (.84) and lowest for adults (.40). In a second experiment 30 girls (mean CA 8 yrs) and 30 women (mean CA 20 yrs) followed an identical procedure, rating both words and nonsense syllables on a 7-shaded blue ruler instead of on bi-polar scales. While women had higher satiation scores, the difference was not significant. There was little satiation on nonsense syllables ($F = 7.49$, $p < .01$). Since children were less susceptible to semantic satiation than adults, retardates may be less susceptible than CA matched normals. Repetition may be a useful tool for teaching verbal skills to MR children. (9 refs.) - *J.M. Gardner.*

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1113 CUPP, MARION EARL. Effectiveness of certain reinforcement schedules on the discrimination learning of moderate and mild mental retardates. *Dissertation Abstracts*, 28A(8): 3015-3016, 1968.

A relatively high rate of performance on a discrimination learning task was maintained over a broad range of reinforcement schedules with 40 moderate and 40 mild MR Ss. Reinforcement schedules varied from Knowledge of Results delivered on a 1:1 basis through a physical reinforcer delivered on a 1 and 10 fixed ratio. The critical schedule range was between 10:1 and 20:1, in that several Ss refused to complete the schedules when they had reached a fixed 20:1 ratio, and none of the Ss completed the second trial on tasks which delivered reinforcement on a 40:1 ratio. All Ss evidenced significant improvement on all conditions across 6 trials; however, mild MRs showed marked improvement over moderate MRs on the condition Knowledge of Results. When tokens which could be exchanged for physical backup reinforcers were used, the performances of mild and moderate MRs were similar. All Ss evidenced considerable resistance to extinction. (No refs.) - *J. King.*

No address

1114 MacMILLAN, DONALD L. Resumption of interrupted tasks by normal and educable mentally retarded subjects. *American Journal of Mental Deficiency*, 73(4):657-660, 1969.

An interrupted task paradigm was used to evaluate the effects of CA and/or MA and sex on resumption choice. One hundred and forty-eight normal and EMR Ss of several selected ages were tested individually. A consistent developmental tendency was found for normals. As CA and/or MA increased, Ss resumed more interrupted tasks. No such trend was evidenced by retarded Ss. A sex difference was not found. The present study failed to find a relationship between CA or MA and resumption choice. (13 refs.) - *Journal abstract.*

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1115 The physiological imprint of learning. *Mental Health Program Reports Number 2.* (Public Health Service Publication Number 1743), Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, February 1968, p. 77-94.

Behavior depends upon the anatomical and chemical attributes of the brain which is primarily influenced by heredity; however, brain characteristics may be altered by experience as well as by drugs. Experiments with rats demonstrated that learning can alter chemical activity and increase cell growth in the cerebral cortex. The effects of impoverishment on rats should not be extrapolated as equivalent to the effects of cultural deprivation on humans. Environment plays a more important role in the development of the human brain in the early formative years than does experience after maturity. Of 13 retarded orphans placed as guests in a state institution and given a great deal of special attention, 11 profited to the extent that they became normally intelligent and later became self-supporting adults. A control group that remained in the orphanage lost IQ points with age. Human education should be programed to cultivate more effective brains and to stimulate growth in the cerebral cortex. (44 refs.) - *B. Parker.*

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1116 GARDNER, THOMAS D., & BARNARD, JAMES W. Intelligence and the factorial structure of person perception. *IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports*, 5(17):1-17, 1968.

A comparative investigation of the relationship between intelligence and the factorial structure of person perception in MRs, normal, and gifted suggest that intelligence level is a determinant of person perception. Ss were 10 MRs of secondary school age (mean IQ 76.70), 10 sixth-graders (mean IQ 99.80), and 10 gifted fourth-graders (mean IQ 132.60). Each S rated the facial expression in 34 pictures from the Froise-Wittman series on 15 bipolar adjective scales. The groups were significantly different ($p < .05$) in total variance accounted for by the factor analysis, size of the first factor, hyperplane count, and congruence between the obtained principal-axis solution and a target matrix. Although the groups did not differ in diversity of cognitive structure in the affective area, the MR group demonstrated a weaker cognitive structure than the non-MR groups. (9 refs.) - *J.K. Wyatt.*

1117 JOHNSON, JOHN T. Intelligence, inhibition, and the orienting reflex. *IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports*, 5(20):1-68, 1968.

A significant correlation was found between the orienting reflex and adaptive resistance to extinction of a classically conditioned eyelid response. There was a tendency for more intelligent Ss to show less inhibition in eyelid conditioning situations where inhibition was in evidence. There was no evidence of a negative relationship between intelligence and inhibition and no indication of significant correlations between the orienting reflex and either intelligence or inhibition. Ss were 64 regular and special class, public school children—32 of whom were assigned to a continuous reinforcement group (mean CA 134.9 mos; mean IQ 92.9) and 32 of whom were assigned to a partial reinforcement group (mean CA 136.7 mos; mean IQ 86.7). Eyelid conditioning was performed while Ss watched silent cartoon movies. Eyelid movement was recorded by a standard Hunter eyelid conditioning system while 2 channels of blood volume recordings were registered. The conditioned stimulus (CS) was a 1,000 cycles/second tone presented through earphones at 65 decibels for a period of 360 milliseconds. The unconditioned stimulus was an air puff of 1.25 pounds/square-inch pressure which was delivered to the right eye during the final 60 milliseconds of the CS. Each S was given 50 acquisition and 30 extinction trials under either continuous or partial reinforcement conditions. These findings do not support a theory of intelligence-inhibition correlation and suggest that IQ and the orienting reflex are independent adaptability estimators. (11 refs.) - *J.K. Wyatt.*

1118 KOPP, HARRIETT GREEN. Problems of perception and cognition among the disadvantaged. In: Tannenbaum, Abraham J., ed. *Special Education and Programs for Disadvantaged Children and Youth.* Washington, D.C. Council for Exceptional Children, 1968, Chapter 3, p. 33-41.

The development of cognitive skills is dependent on the development of language patterns at a level which permits the input, output, and integration of data. The development of these patterns is affected by the complexity and verbal and perceptual orientation of cultural-social settings. The treatment of perceptual and cognitive problems requires differential diagnosis aimed at determining operational level. Treatment should consider cortical activity and the nature of stimulus variables and cortical storage units. It should be based on individualized programing, clinical and team teaching, and continuing longitudinal evaluation. Curriculum in perceptual development may be viewed as a continuum which may be entered at the appropriate point and subdivided into manageable units. Perceptual exercises which proceed from the simple to the complex can be used to help children learn to discriminate the stimulus rapidly, retain an image in visual memory, extend perceptual and visual memory span, develop visual sets, focus attention selectively, inhibit distractions, overcome problems arising from bilingualism, and improve fluency. (No refs.) - *J.K. Wyatt.*

1119 LEONHARD, K., & BERENDT, HILDEGARD. Musikalische Leistung einer Idiotin (Musical performance of a severely mentally retarded girl). *Confinia Psychiatrica,* 11(2):106-118, 1968.

A rare case of musical talent was observed in a 16-year-old SMR girl who could play popular and classical piano pieces after hearing them performed only once. General observation of the S showed normal physical development; however, she manifested little concern for her surroundings. Her speech was unintelligible, and she responded only to very simple questions. When placed at the piano, she struck a few exploratory notes and then played a 2-hour medley of popular songs in continuous succession, modulating between various keys. Later, when allowed to listen to less well known pieces such as operatic arias and waltzes, she reproduced them correctly, except for one piece by Schumann. When a piece was played in an unfamiliar key, she would transpose it into a key with which she felt more at ease. Harmonization of the pieces was always correct; if the S hit a wrong note, it was immediately corrected. The keys most often used were: C major, D major, F major, and E-flat major. Minor keys seemed to have an adverse effect on the S's emotional state, and she avoided them. Harmonic configurations used by the S included inverted sevenths and ninths as well as tonics, dominants, and subdominants. Occasionally the S would improvise a contrapuntal accompaniment which was entirely correct. Generally, a great amount of acoustic memory and imagination was observed in spite of the severe retardation present. (1 ref.) - *S.L. Hamersley.*

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1120 MILLER, M.B. Language and affect in mental retardation. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency,* held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 724-726.

There are at least 3 distinct theories of affect: James' theory that each emotional state corresponds to a physiological one, Schacter and Singer's theory that affect depends on the cognitive state, and Tomkins' theory that affective states are innately determined but may be tempered by acquired cognitive factors. These contrasting views suggest that persons with a limited cognitive repertoire may respond differently than normal persons and that the intimate relationship between affective and cognitive functions depends greatly on language. Preliminary research on affective responses to linguistic or quasi-linguistic stimuli indicates that, while language and other cognitive functions are closely related to affective behavior, some areas of affective behavior in MRs are amenable to study and possible remediation. (5 refs.) - *M.G. Conant.*

1121 MILLER, A. Symbol accentuation: Outgrowth of theory and experiment. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency,* held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 766-772.

Ten SMR children (mean CA 15 yrs; mean IQ 45) were shown flash cards on which 9 words were distorted (accentuated) to look like objects and 9 words were in conventional form. Accentuated words were learned with fewer trials than conventional words, but both forms were discriminated with equal ease within 5-word sentences. Similar results were obtained when accentuated and conventional words were presented to 38 MR children (mean CA 17 yrs; mean IQ 50) using a stroboscopic projector. In another experiment, motion picture animation techniques were used to project either a moving object which was gradually transformed into the appropriate printed word or, incontrast, an object above a word. Normal 3- and 4-year-old children and retarded children (mean IQ 44) did better on accentuated forms, while normal 5- and 6-year-old children did better on separated forms but learned letter-sound relationships better under accentuated conditions. MR persons learned printed words better when the words were associated with pictures of relevant, rather than irrelevant, body actions. (5 refs.) - *M.G. Conant.*

1122 GRAHAM, J. KEITH, HARTMAN, JAMES W.D., FAIRES, WESLEY L., & WURTH, CHARLES W. Communicative disorders of the mentally retarded and pseudoretarded. In: Poser, Charles W., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 6, p. 92-110.

Speech development can be a good indicator of overall functioning although it is possible to have relatively normal development and poor speech. In the retarded, speech should be consistent with other areas of development. Certain specific conditions of retardation

have speech-associated disorders. For example, the speech of persons with Down's syndrome is often thick and sluggish because of an abnormally large tongue. Slow, uncontrolled, inflectionless speech characterizes the spastic cerebral palsy patient, while the speech of an athetoid is generally garbled. It is important to distinguish between speech disorders associated with MR and those disorders which may give the appearance of MR. Examples of the latter are hearing loss, poor articulation, and stuttering. (12 refs.) - *J.M. Gardner.*

1123 SCHWALB, E., & SCHWALB, RITA B. Minimal brain damage, congenital dyslexia and developmental aphasia. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 358-367.

The clinical features of congenital dyslexia (CD), minimal brain damage (MBD), and developmental aphasia (DA) were elucidated by studying 120 children (CA 5-9 yrs), who were referred by school or parent for behavioral or learning problems. Of 16 children with CD, which involves the inability to integrate visual and auditory impulses into a meaningful whole, 12 showed normal motor development, 7 had finger agnosia, 14 had right-left disorientation, and 14 had number dyslexia. The most prominent symptoms of 99 children with MBD were hyperactivity, impulsiveness, short attention span, perseveration, emotional lability, inability to reproduce designs, and normal neurological signs (in 55). DA involves marked expressive language problems in addition to MBD symptoms. The 5 children with DA showed fingeragnosia, right-left fine motor incoordination, hyperreflexia, and speech disturbances, including dysarthria, slow-slurred speech, immaturity for age, stutter, and abnormal speech. (13 refs.) - *M. G. Conant.*

1124 TEMPLE, SIMON. When your background does not help. *Times Educational Supplement*, September 13(Number 2782), 1968.

In order to learn, a child must have multisensory experiences which emphasize listening, understanding, writing, and speaking. Communication should be developed in an enriched environment which involves essential experiences in smelling, tasting, and touching. The effects of emotional deprivation leave many EMR children unable to cope with problems associated with learning. These children require an environment which provides training for adequate speech development, opportunities to express themselves freely in a variety of media, and activities aimed at sensory development. Parents and teachers can overcome one of the causes of backwardness if they focus their efforts on creating home and school environments which will make communication in a variety of media pleasurable and easy. (No refs.) - *J. King.*

No address

1125 SABATINO, DAVID A., & CRAMBLATT, HENRY. A longitudinal study of children with learning disabilities subsequent to hospitalization for viral encephalitis: Part 1. *Journal of Learning Disabilities*, 2(2):65-75, 1969.

Assessment of the information processing behaviors of 13 children (CA 5-14 yrs) who had an acute encephalitis infection indicates that a specific viral infection may cause changes in information processing behaviors associated with learning. The test battery included the Wechsler Intelligence Test for Children (WISC), the Goodenough-Harris Drawing Test, the Bender Visual-Motor Gestalt Test, Test of Auditory Perception, Southern California Test of Motor Accuracy, Wide Range Achievement Test, Gilmore Oral Reading Test, and a Checklist of Problem Behaviors. WISC data revealed a significant impairment (.05 level) in perceptual organization and freedom from distractibility for 6 Ss, highly inconsistent intra-subject variations in scale scores, and a significant (.05 level) mean change in digit span subtest performance over time (6 and 26 mos after illness). Academic achievement tests indicated a trend toward academic underachievement in all skill areas evaluated; increased patterns of underachievement in reading, word recognition, and spelling for kindergarten and first grade Ss; increased arithmetic underachievement in older Ss; and general increases in underachievement in most subject areas over a 36-month interval for 11 Ss. These data indicate that children with encephalitic histories are poor academic risks in the regular classroom and require supportive psychoeducational work. (10 refs.) - *J. King.*

No address

DEVELOPMENTAL ASPECTS—SOCIAL AND EMOTIONAL

1126 SPRADLIN, JOSEPH E., GIRARDEAU, FREDERIC L., & CORTE, ENRIQUE. Social and communication behavior of retarded adolescents in a two-person situation: II. *American Journal of Mental Deficiency*, 73(4):572-577, 1969.

Two experiments were conducted with 24 pairs of retarded adolescents to evaluate giving and communication. The first experiment evaluated an operator's giving responses, as a function of the value of the reinforcement and whether or not it cost him to deliver reinforcement to the receiver. Values of reinforcement had no effect on giving responses. All operators gave when it did not cost them. Only 5 of 24 operators delivered reinforcement when it cost them their possibility for reinforcement. The second experiment demonstrated that 18 of 24 of the pairs communicated within 6 sessions when communication resulted in mutual reinforcement. (4 refs.) - *Journal abstract.*

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1127 MERCER, CHARLES V., SCHOELKOPF, ANN M., & ORLANDO, ROBERT. Peer influences on reward value: Performance of retardates on a task requiring temporally-spaced responding. In: *IMRID Behavioral Science Monograph Number 13*, Nashville, Tennessee, Institute on Mental Retardation and Intellectual Development, 1968, 105 p.

Three experiments used a limited hold task to study the effects of social referents on reactions to rewards by institutionalized MRs. The first experiment investigated the relationship between input and outcome in social and nonsocial situations of 9 MRs (IQ range 37-55; CA range 17 yrs 10 mos-20 yrs 6 mos). Experiment 2 was an examination of the extent to which reference group and equity theories could be applied to the behavior of 9 MRs (IQ range 31-39; CA range 18 yrs 9 mos-37 yrs 7 mos). Ss for experiment 3, an investigation of the effects of changes in rewards on the input-output relationships of an individual and a significant "other," were 22 MRs (IQ range 34-48; CA range 15 yrs 9 mos-20 yrs 11 mos). In addition to MR Ss, experiments 2 and 3 used 2 normal "stooges" recruited from the community. Although consistent, uniform reactions across Ss were not found, the results suggest that the limited hold task is an appropriate study method, that received or anticipated reward affects task performance, that performance is postively related to reward level, that introduction of a social referent into a previously isolated performance situation results in distraction, and that the social referent's behavior and reward have their fullest effect on an S's behavior when the S's perception of the situation includes potential for change. Ss used social referents in varying ways, such as, for clues about the potential or future of the situation, an added task factor, or as a standard for reward comparison. (13 refs.) - *J.K. Wyatt.*

1128 STAMM, JOHN M., & GARDNER, WILLIAM I. Effectiveness of normal and retarded peers in influencing judgments of mildly retarded adolescents. *American Journal of Mental Deficiency*, 73(4): 597-603, 1969.

Conformity behavior of groups of male and female mildly retarded adolescents was evaluated in a simulated group atmosphere. During a simple cognitive task, social models depicted as retarded and normal peers provided discrepant judgments. Female retardates were more influenced by female models depicted as retarded. In contrast, male retardates were more influenced by normal male peers. (22 refs.) - *Journal abstract.*

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1129 CHIVA, M. Contribution a l'etude de la pensee conceptuelle et l'insertion socio-professionnelle des debiles mentaux (Conceptual thought and socio-professional adaptation of the mentally retarded). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 869-872.

A group of 42 MR females (CA 13-16 yrs; IQ range 50-70) who lived at home and attended special classes were presented with drawings of familiar objects and geometrical shapes and required to sort them. Ss with MR of exogenous origin produced incoherent and unreasonable classifications, compared to those of Ss with MR of endogenous origin. Performance on this test was compared with data on social-occupational adaptation (occupation, social standing, number of jobs held in the 3 years of the investigation, and criminal acts). There was a correlation between degree of conceptual thought and ultimate social adaptation, with

the exogenous group experiencing more difficulty in social adaptation than the endogenous group. (No refs.) - *M.G. Conant.*

1130 STEPHENS, WILL BETH, PECK, J.R., & VELDMAN, DONALD J. Personality and success profiles characteristic of young adult male retardates. *American Journal of Mental Deficiency*, 73(3): 405-413, 1968.

The basic factors underlying personal, socio-civic, and vocational success in 100 mildly retarded young adults (CA 18 to 26 yrs; IQ 50 to 75) were examined. Ss were graduates of private and state agencies. Eighty success criteria were factor analyzed to obtain 17 criterion factors. Structured interviews with Ss, parents, and job supervisors were conducted. The 78 predictor variables were represented by 21 factors. Eight different groups were derived through hierarchical analysis. A complex interactional pattern emerged. For example, lower level Ss who were work-oriented were successful in vocational but not in personal and socio-civic areas. Higher level Ss with serious emotional problems and social immaturity did not perform successfully in any area. Failure experiences were associated with attitudes of rebelliousness, irresponsibility, and critical opinions of others. Socially oriented, satisfied Ss tended to perform best if continued guidance was accepted. Physical size, stamina, and freedom from physical handicaps were important variables. (13 refs.) - *J.M. Gardner.*

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1131 The effect of childhood influences upon intelligence, personality, and mental health. *Mental Health Program Report—Number 3.* (Public Health Service Publication Number 1876.) Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, January 1969, p. 293-317.

The mental competency of our nation could improve if results of 3 longitudinal studies at the University of California (Berkeley)—the Berkeley Guidance Study on personality development, the Berkeley Growth Study on physical and mental health, and the Oakland Growth Study on the effect of adolescence upon later life—were used to change certain environmental factors of childhood. At all IQ levels the intelligence tended to rise until the age of 36 years. Adult MRs had made below average adjustments to life by 11 years-of-age. At age 36, 20 of 66 Ss in the Oakland Growth Study suffered psychosomatic disorders. Most of these Ss had either ulcers or hypertension; the rest had migraine headaches, spastic colitis, asthma, or arthritis. All had a tendency toward depression. Guidance Study findings indicate that adults with psychosomatic ailments or psychological problems came from families with more disruption and less security than normal. Family circumstances when the child is very young appear to influence mental development more permanently than later outside influences. Traumatic events in adolescence can be overcome; many adolescents with a poor forecast had become stable adults. Future investigations will search out factors in early life that predispose the individual to psychosomatic illness and psychological maladjustment and investigate the heredity of abilities and traits. (24 refs.) - *S.L. Markworth.*

1132 CARROLL, MARILYN M. Material possessions and mental retardation. *Mental Retardation*, 7(1):20-24, 1969.

A ward of female patients (IQ range 4-71; mean IQ 40.5; CA range 15-45 yrs; mean CA 26 yrs) were the Ss for a study of the role played by possessions in the lives of institutionalized MRs. These patients could not "get along" on other wards or had previously attempted to escape. Excluding clothes, their mean number of possessions was 15.7, and a significant plurality had 3 possessions or less. There were 194 different types of objects observed on the ward. Number of possessions owned was significantly related to intellectual level ($p < .025$). Patients with IQs in the middle range (31-54) tended to have the most possessions, to be the most possessive about them, and to carry them on their persons more frequently. Possessions, particularly those of the middle and low IQ groups, were seldom utilized by the Ss, they were only held or displayed. The middle IQ group seemed to use possessions to make up for the insecurity they felt regarding their status; possessions were used as "status symbols." (8 refs.) - *B. Parker.*

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1133 LAFON, REMY. Sexualite et procreation chez le debile profond (Sexuality and procreation in the severely retarded). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of the Mentally Deficient*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 704-708.

In accordance with every man's right to life, liberty, and love, SMR adults should not be denied sexual activities. However, since studies have shown that the children of the SMR are very likely to be retarded, whether from heredity or environment, or both, some form of contraception is necessary. Sexuality and sexual awareness by the SMR increase with increasing intellectual ability. Thus, those with higher IQs tend to make stable partner choices and to have heterosexual activities, while those with lower IQs tend to make unstable partner choices and to engage in auto-erotic activity. (No refs.) - *M.G. Conant.*

1134 GIRAUD L'HERBAULT, G. Sexualite et procreation chez les debiles profonds (Sexuality and procreation in the severely retarded). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 709-710.

The SMR can be divided into 3 groups on the basis of their sexual behavior: those who have no interest in the opposite sex; those who have a juvenile, non-discrete interest in the opposite sex; and those who have a more mature and discrete interest and for whom marriage may be possible. For the latter group, the probability that marriages will produce MR children is very high. To avoid this, sterilization is possible, but sterilization

reduces the MR to a sub-human state. The use of contraceptives entails assistance and surveillance. The most desirable course appears to be one of educating SMRs to lead a celibate life. (No refs.) - *M.G. Conant.*

1135 VEDRENNE, J.M. Sexualite and procreation chez le debile profond (Sexuality and procreation in the severely retarded). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 711-714.

The sexual behavior of SMRs can pose many problems. The behavior can be at the level of autoeroticism, homosexuality, or heterosexuality. The latter level poses the most problems and questions. Local dwellings could be built for MR couples who wish to live together but cannot adapt to society. Similar residences could be built for MRs who wish to remain celibate and live outside of the large institution. (No refs.) - *M.G. Conant.*

1136 KAUFMAN, M.E. Studies of sterotyped behaviours in institutionalised mental defectives. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 906-908.

The effects of age and time of day on 3 forms of stereotyped behavior (body rocking, head rolling, and waving hand before eye) were studied in 83 ambulatory and partially ambulatory institutionalized MR patients. Both body rocking and head rolling increased in frequency prior to meals and bedtime (times of increased tension), while waving hand before eye varied little in time and was observed more frequently in younger Ss. Factor analysis showed associations between head rolling and hearing impairment; between body rocking and use of tranquilizers, hearing impairments, institutionalized siblings, and broken homes; and between waving hand before eye and visual impairment and broken homes. Institutionalized Ss showed more stereotyped and self-stimulating behaviors than MR children living at home who showed more social behaviors. Both groups showed more social behavior and manipulation of the environment in the early afternoon than in the later afternoon. (14 refs.) - *M.G. Conant.*

1137 WILLIAMS, CYRIL E. Behaviour disorders in handicapped children. *Developmental Medicine and Child Neurology*, 10(6):736-740, 1968.

Although handicaps tend to predispose children to peculiarities of behavior, none of the major handicaps is associated with a specific behavior disorder. Parental attitudes toward the child and handicap seem to be more significant in the development of the child's personality than the handicap itself. Disordered behavior, like normal behavior, is learned. Child/parent interactions are the basis for learning and for the high incidence of behavior disorders in handicapped children. A few of the mechanisms which contribute to faulty child/parent interactions in autistic and blind children are described. (10 refs.) - *E.R. Bozymski.*

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1138 ANGLE, CAROL R., McINTIRE, MATILDA S., & MEILE, RICHARD L. Neurologic sequelae of poisoning in children. *Journal of Pediatrics*, 73(4):531-539, 1968.

Behavior disorders and learning impairment, subsequent to accidental poisoning with acute intoxication of the central nervous system (CNS), were evaluated in a retrospective study (18 mos to 14 yrs after poisoning) of 41 children who suffered such intoxication during the first 5 years of life and 41 controls hospitalized for poison ingestion but without CNS symptomatology. Extensive neurological, psychological, psychometric, and sociological investigation failed to show any significant differences between the 2 groups; however, those children who had toxic convulsions (most secondary to ingestion of chlorinated hydrocarbon insecticides) had significantly lower Stanford-Binet intelligence test and Bender-Gestalt scores and more behavior problems than did controls. The risk of intellectual impairment and neurological sequelae following toxic convulsions in early childhood requires further investigation. Whether these sequelae are due to anoxia during convulsions or specific CNS toxicity might be determined by a prospective study by several cooperating poison control centers. (31 refs.) - *E.L. Rowan.*

Department of Pediatrics
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1139 SWANSON, DAVID W. Adult sexual abuse of children: The man and circumstances. *Diseases of the Nervous System*, 29(10): 677-683, 1968.

The review of 25 consecutive cases of men referred by courts for psychiatric evaluation because of a sexual offense against a minor child showed that there was no single classic "pedophiliac" syndrome, but that such an act was a result of a complex interaction between personality and environment. Commonly, the offender had a history of heavy alcohol consumption, was experiencing difficulty with his usual source of sexual gratification, and had multiple contacts with a child already known to him. Only 4 of the patients showed a classic fixed desire for a child, and in 4 others suffering from organic brain syndromes or MR, the sexual attraction for children was part of an overall immature relationship with society. The majority of offenders used a child as a nonspecific and convenient sexual object. The concept of a specific psychological problem in such offenders which is inherent in current sexual psychopath laws is in need of revision. (10 refs.) - *E.L. Rowan.*

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1140 HOFSTATTER, LEOPOLD, & HOFSTATTER, LILLI. Emotional problems of the child with mental retardation and his family. *Southern Medical Journal*, 62(5):583-587, 1969.

Emotional problems are a common complication of MR and must be recognized and treated. The MR child lacks adaptability and flexibility under changing circumstances and is subject to traumatic experiences (such as, maternal affective deprivation, rejection, overproduction, and humiliation) which predispose to emotional disorder. Despair and depression are common at every age because the retarded child, adolescent, or adult is unable to keep pace with his peers. Psychotropic drugs, a warm relationship with an adult, aids in learning, socialization and communication, and realistic advice may be useful in treating the child. Parents must be guided and supported by the physician. Crisis intervention at times of diagnosis and/or institutionalization, continued support during the long period of "chronic sorrow", and channeling parental energy toward constructive goals may relieve the parents' anxiety and guilt and allow them to deal more effectively with their MR child. (19 refs.) -*E.L. Rowan.*

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1141 KESSLER, JANE W., ABLON, GRIDTH, & SMITH, EDITH. Separation reactions in young, mildly retarded children. *Children*, 16(1):2-7, 1969.

Evidence from 2 play group programs for MR children indicate that separation reactions are normal and that the mother's presence is necessary at the beginning of a program for young MRs. A demonstration play group program to effect gradual separation of children from their mothers and adjustment to nursery school involved MR children (CA 18-32 mos; IQ 58-83), average children (CA 18-32 mos; IQ 91-117) and their mothers. With mothers present, all children played at the same level, and with mothers absent, both groups regressed and evidenced rigid behavior. Verbalization was in the form of short, direct questions when mothers were present. When mothers were absent, normal children talked more to allay anxiety and asked questions, while MR children appeared to be overwhelmed with fear. In another study, play groups of 7-8 MRs (CA 3-5 yrs; MA 18-30 mos) met for 1 1/2 hours, 3 days a week. When mothers were present, they were ignored by the children until surroundings became familiar. Later in the program the mothers met in another room with a social worker. These sessions were designed to help the mothers recognize the children's emotions, examine their own feelings and learn to communicate them, and learn practical home management and home teaching techniques. A child may disguise separation reactions by refusing to cooperate with the teacher. The teacher may bring the mother back into the classroom or help the child to master the feelings by recognizing and accepting them. (5 refs.) - *M. Plessinger.*

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1142 GANGULY, D. Problems involving social and emotional adjustment among the mentally retarded children. *Indian Journal of Mental Retardation*, 1(1):29-33, 1968.

To determine the incidence of social and emotional problems in MR children in India, 200 delinquents, 200 neglected children, and 35 MRs were studied. CA range for all Ss was 8 to 20 years. Intelligence tests, case histories, behavior ratings, and psychiatric examinations were utilized. The incidence of MR was greater in delinquent and neglected children (6%) than in the general population (2%). This may be a reflection of inadequate screening methods which rarely make use of professional psychological assistance. Of the 35 MRs, almost 2/3 manifested problems associated with mild or greater emotional disturbance and 1/3 manifested predominantly educational training problems. There is a need for greater understanding of the problems of MR and a need to make better use of psychiatric and psychological assistance. (6 refs.) - *E.R. Bozymski.*

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1143 HATHAWAY, STARKE R., REYNOLDS, PHYLLIS C., & MONACHESI, ELIO D. Follow-up of 812 girls 10 years after high school dropout. *Journal of Consulting and Clinical Psychology*, 33(4): 383-390, 1969.

The effects of dropping out of high school on 812 girls were examined by comparing data on 812 non-dropout controls and male dropouts from a previous study. Follow-up data were obtained 10 years after dropping out. Dropouts were characterized, in general, by average to below average intelligence and were from low income families. They had higher separation and divorce rates and generally married into lower socioeconomic status groups. Medium and high intelligence dropouts failed to show the upward social mobility characteristic of medium and high intelligence non-dropouts; however, downward social mobility was evident only for dropouts from blue collar families. These findings indicate that dropping out of high school is less devastating to girls than boys since all boy dropouts manifested downward social mobility. Five percent of the girls returned to finish high school and 2% went on to college. (12 refs.) - *J.M. Gardner.*

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1144 TAYLOR, ANN. Deprived infants: Potential for affective adjustment. *American Journal of Orthopsychiatry*, 38(5):835-845, 1968.

In order to test the hypothesis that early, prolonged, and severe maternal deprivation causes permanent, irreversible psychological damage, a group of 30 children with a homogeneous background of institutionalization and extreme conditions of maternal deprivation were adopted at about age 3 1/2, and plans were made to follow them into early adult life. Four children were studied intensively at age 12 and no

homogeneous pattern of psychopathology was found. All were described as restless, with short attention spans, and unable to cope with frustration. Three of these children were able to establish a meaningful dependence on their adopting parents and develop feelings of trust in others and themselves. These 3 were functioning within the normal range of intelligence, which indicates that deprivation need not cause irreversible MR. Although some of these children are slowly attaining normal intellectual and social function, some personality deficits are manifest. The effects of deprivation, while not homogeneous and profound, are present and will be better documented as follow-up continues. (16 refs.) - *E.L. Rowan.*

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1145 PAYNE, RUDOLPH. The psychotic subnormal. *Journal of Mental Subnormality*, 14(2):25-34, 1968.

The occurrence of psychotic behavior in MR patients is frequently overlooked or misdiagnosed as part of MR; however, intelligent observation and proper treatment can lead to improved manageability. Careful examination of 216 institutionalized men (CA 5 to 76 yrs) in a hospital for MRs (Norfolk, England) revealed 22 with psychotic features. The psychoses of the MR, regardless of age, were more closely related to childhood than adult types, with the primary deficit in appreciation of and response to the environment. Psychosis occurred at all levels of subnormal functioning and was usually prolonged. Although tranquilizing or antidepressant medication was usually effective in controlling abnormal activity and/or mood, there was relatively little change in distorted thought processes. Without the recognition of underlying psychosis, improvement in potentially dangerous behavior might not have been accomplished. (20 refs.) - *E.L. Rowan.*

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1146 O'GORMAN, G. The relationship of severe emotional disorders including psychosis, with intellectual deterioration. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 330-336.

Emotional factors play an important and hitherto unrecognized role in the development and maintenance of intellectual functioning. In many cases intellectual subnormality may be the result of a failure in "drive" which normally arises from emotional interest and commitment. If emotional factors prevent effective stimulation in the early hours, days, and years of life, intellectual development may be retarded. If a child suffers from a lack of involvement with reality as in childhood autism, he may lack the interest and drive which allow him to accept stimulation. The effect of optimal stimulation on intellectual development is still unknown. (10 refs.) - *M.G. Conant.*

1147 SUSSELMAN, SAMUEL. Comments on the diagnosis of the mental retardate. In: Szurek, S.A., & Berlin, I.N., eds. *Psychosomatic Disorders and Mental Retardation in Children.* (Langley Porter Child Psychiatry Series, Volume 3.) Palo Alto, California, Science and Behavior Books, 1968, p. 153-155.

Similarities between schizophrenic and MR children include unresponsiveness to people, aversive reactions to physical contact, speech and motor difficulties, and stereotyped behavior. One example of the way in which work with schizophrenics can be applied to MR is the role of parental anxiety in the etiology and treatment of an individual's disorder. The discussion of emotionally laden material can often help reduce anxiety. External stress can cause marked shifts in a child's performance. The therapist can utilize interpersonal contacts with the child to facilitate improvement. (No refs.) - *J.M. Gardner.*

1148 ORNITZ, EDWARD M., & RITVO, EDWARD R. Neurophysiologic mechanisms underlying perceptual inconstancy in autistic and schizophrenic children. *Archives of General Psychiatry*, 19(1):22-27, 1968.

Disruption of the equilibrium and overlap into waking life of the periods of tonic inhibition (TI), phasic inhibition (PI), and phasic excitement (PE) seen in rapid eye movement (REM) sleep may be responsible for the behavioral states of hyperexcitation and inhibition seen in autistic children. The dissociation of excitation and inhibition may be the basic pathophysiologic mechanism responsible for the disruption of sensory input in autistic children. In REM sleep, PE and PI require a normal vestibular system. The whirling behavior and unusual reactions to equilibrium affecting states of autistic children could be a manifestation of vestibular abnormality. The whirling, circling, and hand flapping behavior of these children could be due to the operation of PE in their waking lives, and their posturing, immobility, and states of non-reaction to sensory stimuli could be analagous to TI and PI. Other activities may have their counterparts in REM sleep. The PE of REM sleep is normally restrained by PI and TI; its disruption into waking life could result in the behaviors exhibited by autistic children. Although REM sleep disturbances have not been established in autistic children, there have been reports of such disturbances in schizophrenic patients. (50 refs.) - *E. Gaer.*

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1149 RUTTER, MICHAEL. Concepts of autism: A review of research. *Journal of Child Psychology and Psychiatry*, 9(1):1-25, 1968.

Infantile autism (as manifested by an inability to relate to others, delay in acquisition of speech and abnormalities of language, and a variety of ritualistic phenomena) has been hypothesized to be a variant of schizophrenia, an organic brain syndrome, a form of MR, and a result of social withdrawal; however, the best explanation at present appears to be a defect in the comprehension of language and in the utilization and

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organization of perception. Many autistic children function at a mentally subnormal level on intelligence testing, but their worst scores appear on subtests requiring verbal skills. Approximately 1/2 the children with autism have demonstrable organic brain pathology, but no genetic determinants have been proven. Psychogenic explanations imply parental pathology specific to the identified patient, as siblings are usually not involved. Intelligence and language development are the most important prognostic factors, and social withdrawal may be reduced in therapy without change in language or intelligence. The failure to comprehend sounds as the primary defect does not explain all manifestations, but social withdrawal and parental frustration may be secondary to this. A language hypothesis, then, is most likely to lead to fruitful research. (115 refs.) - *E.L. Rowan.*

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1150 WING, LORNA. The handicaps of autistic children—Results of a pilot study. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 505-512.

To test the hypothesis that childhood autism is connected with perceptual and cognitive disorders, a questionnaire was devised which consisted of 200 questions in 15 categories including 9 perception and motor control categories, 5 behavior problem categories, and one non-verbal skills and interests category. The questionnaire was completed by parents of 15 autistic, 15 normal, 5 mongoloid, 8 receptive aphasic, 5 expressive aphasic, and 9 partially blind and partially deaf children. Autistic children had speech comprehension and use problems similar to those of children with receptive aphasia, pronunciation difficulties and apraxias resembling those of children with expressive aphasia, and visual problems similar to those of partially blind and deaf children. They were more handicapped in understanding and gesturing than aphasic, normal, or mongoloid children. Their behavioral abnormalities may be due to underlying handicaps which may be a combination of auditory and visual imperception and motor apraxias of central origin. (6 refs.) - *M.G. Conant.*

1151 HUTT, S.J., & HUTT, CORINNE. Stereotyped behaviour in autistic children. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 909-912.

The frequency and duration of stereotypies in autistic children increased with increasing situational complexity, and there was a corresponding increase in the abundance of desynchronized EEG activity. The behavior of autistic children without stereotypies was similar to that of normal children, while that of autistic children with stereotypies differed significantly from both groups. In a familiar room containing several familiar and one novel object, autistic children initially ignored the novel object in contrast with normal and brain-damaged children. Preliminary results indicate that the rate of stereotypy of autistic children is significantly higher than that of MRs with autistic features. Also, the stereotyped behavior of the autistic children occurred more frequently with increases of environmental complexity while that of the MR occurred in the absence of stimulation. (9 refs.) - *M.G. Conant.*

1152 BOSCH, G., & JUNGJOHANN, E. Phenomenological aspects of early infantile autism. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 913-916.

Autistic children are generally not mute, but due to a lack of conceptualization, their language is not truly communicative. Their speech production seems to serve only the need for action or pleasure, and disturbances are found in the development of language elements related to the imperative function and the interjective function. Language has a defensive function in which the child tries to pretend interpersonal contact, thus helping to mask his isolation to himself. Verbalization as part of a situation is important, and the interrogative language function and the ability to begin a conversation are conspicuously delayed. (3 refs.) - *M.G. Conant.*

1153 WARD, T.F., & HODDINOTT, B.A. The development of speech in an autistic child. *Acta Paedopsychiatrica*, 35(4-8):199-215, 1968.

Fluent speech was developed in a mute 4-year-old autistic boy. A 3-minute sampling technique was used to obtain a total of 540 samples over an 18-month period. Verbal behavior classification systems used included: Thistletown I which dealt with self-directed, other-directed, and object-directed speech; Thistletown II which was concerned with a variety of areas including the content and the person to whom the speech was directed; and Piaget's egocentric and socialized speech classifications. Initially, the child's speech was characterized by verbal noises and non-communicative sounds. These were followed by the appearance of self-directed speech and later of object-directed speech and speech elicited by female staff. Requests and other-directed speech also occurred, but with less frequency and did not increase as much over time. Speech categories covered by Piaget's scale developed later. The most significant parts of speech in Piaget's classification were monologue and collective monologue (egocentric speech). Socialized speech (commands, answers, questions) appeared later and did not increase in frequency at the same rate as egocentric speech. There was no clear relationship between the stage at which types of speech appeared and the rate of accumulation of that type of speech. (14 refs.) - *J.M. Gardner.*

Sacred Heart Children's Village
Scarboro, Ontario, Canada

1154 O'CONNOR, N. Visual input and social response in autistic children. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 502-504.

The eye-movements of normal, subnormal, and autistic children were studied by recording the direction of their gaze at one or the other of 2 illuminated pictures, with the eye movements related to the rewarding quality of the display. The experiments involved the measurement of eye contact, social contact, and novel versus familiar stimuli. The results indicate that autistic children do not avoid eye contact, in that at ages 6-14, they show responses similar to those of normals of the same MA. They do not avoid social interaction with adults, and they show a marked interest in people or pictures of people as compared with other displays. Autistic children spend less time on visual inspection of any display than do normal children of the same MA. (No refs.) - *M.G. Conant.*

DEVELOPMENTAL ASPECTS—PSYCHODIAGNOSTICS

1155 HALL, ERIC. The validity of the JEPI for ESN children. *British Journal of Social and Clinical Psychology*, 8(1):81-82, 1969.

Although correlations were low, the validity of the Junior Eysenck Personality Inventory (JEPI) for EMR children was confirmed. The responses of 32 boys and 32 girls (CA 12-16 yrs; IQ 51-90) on the JEPI were compared with teacher ratings of the children on the Bristol Social Adjustment Guides. Extraversion correlated negatively with unforthcomingness (-.32), withdrawal (-.42), and emotional tension (-.16) and positively with anxiety for adult attention (.16), hostility to other children (.18), restlessness (.20), and inconsequentiality (.24). Neuroticism correlated positively with depression (.14), emotional tension (.16), and miscellaneous nervous symptoms (.15). (4 refs.) - *A. Huffer.*

F. L. Calder College of Education
for Domestic Science
Liverpool, England

1156 DOUGLAS, VIRGINIA I., & SANDERS, FRANCES A. A pilot study of Rimland's Diagnostic Check List with autistic and mentally retarded children. *Journal of Child Psychology and Psychiatry*, 9(2):105-109, 1968.

The concurrent validity of the Rimland Diagnostic Check List for Behaviour-Disturbed Children was investigated in an attempt to discriminate between MR and autistic children. The Rimland test is an 80-item questionnaire which is completed by an adult who is familiar with the child. The items are concerned with development, family history, and behavioral characteristics from birth to 5 years. High scores indicate autism. Ss were 13 MRs (5 boys, 8 girls; CA range 3 yrs 10 mos-8 yrs 8 mos; mean CA 5 yrs 5 mos) and 13 autistic children (10 boys, 3 girls; CA range 3 yrs 3 mos; mean CA 5 yrs). Autistic Ss came from higher socioeconomic groups than MR Ss. Scores for autistic Ss were significantly higher ($p < .001$) than scores for retarded Ss; however, none of the scores of the autistic children reached the suggested cut-off point for a diagnosis of autism, and only 1 S scored in the "questionable" range. Large scale studies to differentiate among autistic, psychotic, and retarded children are needed. (6 refs.) - *J.M. Gardner.*

Department of Psychology
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1157 COBB, H.V. The prediction of adult adjustment of the retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 314-322.

The use of actuarial techniques in the prediction of success and failure of the retarded to make adult adjustments has just begun; however, the results have already shown that there is a vast range of possible meanings of success and failure for which reliable measures have not been developed. The various measures proposed lack predictability and reliability over time. The best approach appears to lie in the use of test data and other descriptive indices as a basis for training and placement, rather than as long-range predictors. In the future, modern data processing techniques may be used to make accurate prognostic statements. (12 refs.) - *M.G. Conant.*

1158 KASPAR, JOSEPH C., THRONE, FRANCES M., & SCHULMAN, JEROME L. A study of the inter-judge reliability in scoring the responses of a group of mentally retarded boys to three WISC subscales. *Educational and Psychological Measurement*, 28(2):469-477, 1968.

Interscorer reliability on 3 subscales of the Wechsler Intelligence Scale for Children (WISC) was examined by having 2 experienced and 2 inexperienced judges score the test responses of 40 MR boys (CA 11 yrs to 14 yrs 11 mos; IQ 36-69). Transcribed answers for the Similarities (S), Comprehension (C), and Vocabulary (V) subscales were scored in order; however, each item on a subscale was from a different S. Two statistical comparisons were made: the percentage of agreement and Pearson product moment correlation. For experienced judges, percentage of agreements ranged from 95 (S) to 71 (C), while for inexperienced judges the range was 87 (S) to 66 (V). Correlations ranged from .97 (S) to .74 (C) for experienced judges and .91 (V) to .83 (C) for inexperienced judges. Intra-judge reliability (the same judge re-rating the same records after 1 yr) was considerably higher on both measures. Agreements between experienced judges were significantly greater than for inexperienced judges in only one case. Experienced judges agreed more often with their own ratings than with those of the other experienced judge. Experience in the use of the WISC appears to increase the probability that private scoring norms will be used. Inter-judge reliability was considered adequate for the S and V subscales. (5 refs.) - *J.M. Gardner.*

Children's Memorial Hospital
Chicago, Illinois 60600

1159 STERNLICHT, MANNY, SIEGEL, LOUIS, & DEUTSCH, MARTIN R. WAIS subtest characteristics of institutionalized retardates. *Educational and Psychological Measurement*, 28(2):465-468, 1968.

The Wechsler Adult Intelligence Scale (WAIS) scores of 509 MRs at the Willowbrook State School (New York) were evaluated in order to provide norms for institutionalized MRs and to compare them with Wechsler's standardization data. Ss included all MRs (277 males, 232 females), except those with emotional disturbances, who had been evaluated after 1960 with the WAIS. Non-whites (Negroes and Puerto Ricans) comprised 19.3% of the group as compared to 10% of the standardization sample. There were no significant differences from the means for any subtest scores. Directional vectors (postulated for comparative purposes)revealed that only 2 (Object Assembly and Digit Symbol) of the 11 subtests are in agreement with Wechsler's original sample; 2 subtests (Similarities and Picture Completion) showed the most marked directional deviations. Generally, the MR scores indicated homogeneous intellectual ability and relative adequate social capability. (3 refs.) - *A. Huffer.*

Willowbrook State School
Staten Island
New York 10300

1160 BYRD, COLEEN, & SPRINGFIELD, LYNN. A note on the Draw-A-Person Test with adolescent retardates. *American Journal of Mental Deficiency*, 73(4):578-579, 1969.

The Draw-A-Person Test (DAP), though often used to assess the intelligence of subnormals, has obtained only limited support from published research. The present study compared the WISC and DAP scores of 57 adolescent retardates to investigate the predictive ability of the DAP. The 2 instruments correlated significantly but differed in categorizing institutionalized MRs, leading to the conclusion that the DAP may serve the useful function of screening for such a population. (9 refs.) - *Journal abstract.*

Psychology Department
Arkansas Children's Colony
Conway, Arkansas 72032

1161 COCHRAN, MALCOLM L., & PEDRINI, DUILIO T. The concurrent validity of the 1965 WRAT with adult retardates. *American Journal of Mental Deficiency*, 73(4):654-656, 1969.

Wide Range Achievement Test (WRAT) standard scores were compared with Wechsler Adult Intelligence Scale (WAIS); Stanford-Binet, Form L-M (SB L-M); and Peabody Picture Vocabulary Test IQs for a sample of retardates (72 males). The SB L-M was found to correlate best with WRAT subtests (*r*s .68 to .77), though the means were significantly different. WAIS Full Scale X WRAT correlations ranged from .60 to .77, while mean differences were significant only on the Arithmetic subtest. The WRAT subtests were found to be valid when contrasted with IQs from intelligence tests. However, the high correlations reported have assured comparability of test quotients only in an ordinal sense due to a number of significant *t*s between the scales. (11 refs.) - *Journal abstract.*

225 W. Florence
Glenwood, Iowa 51534

1162 BLUE, C. MILTON. PPVT temporal stability and alternate form reliability with the trainable mentally retarded. *American Journal of Mental Deficiency*, 73(5):745-748, 1969.

An investigation of one year temporal stability (Form A) and alternate form reliability of the Peabody Picture Vocabulary Test (PPVT) was conducted with 116 Ss (CA 6 yrs 6 mos-32 yrs 8 mos) in a school for the TMR. A correlation matrix was prepared using raw, IQ, and MA scores for the total group and for subgroups based on CA. High reliability was demonstrated in both alternate form testing and one year interval test-retest regardless of the form of scores employed or age groupings. (7 refs.) - *Journal abstract.*

University of Georgia
Athens, Georgia 30601

1163 ALLEN, ROBERT M. The mental age—Visual perception issue assessed. *Exceptional Children*, 35(9):748-749, 1969.

Since the correlation between the Developmental Test of Visual Perception (DTVP) and the Peabody Picture Vocabulary Test (PPVT) is low, the DTVP apparently evaluates processes different from the PPVT. In addition, the fact that there is a marked variation in visual perceptual maturation among EMRs indicates that the PPVT should not be used as a criterion measure or vice versa. (5 refs.) - *L. Kyle.*

University of Miami
Coral Gables, Florida 33146

1164 ALLEY, GORDON R. Visual Retention Test, Administration C: Norms for mentally retarded children. *Perceptual and Motor Skills*, 27(2):438, 1968.

Form C (copying) of the Benton Visual Retention Test was given to 165 EMRs (CA range 6 yrs 6 mos to 13 yrs 6 mos; IQ range 55-85) in order to obtain normative data for elementary-age MRs. The Ss were enrolled in special classes for the EMR and were randomly selected. Normative data for the number correct and total error scores were determined for CA 7-13. Differences between the mean score performances of normal Ss in a previous study and those of the current sample were apparent at each age level. (2 refs.) - *J.M. Gardner.*

University of Iowa
Iowa City, Iowa 52240

1165 VIGNOLO, L.A. Factors underlying impairment of visual-ground discrimination and sorting tasks in hemisphere-damaged patients. *Journal of Learning Disabilities*, 1(4):230-241, 1968.

In an investigation of a possible common factor underlying the poor performance of brain-damaged Ss on hidden figures and sorting tests, the Gottschaldt Hidden Figures Test and the Weigl Sorting Test were administered to 4 groups of patients. In order to control for etiology and length of illness, right brain-damaged (RBD), aphasic (A), non-aphasic left brain-damaged (NA LBD), and hospitalized non-brain-damaged controls were used as Ss. On the sorting test, the performance of A Ss was significantly poorer than that of RBD or NA LBD Ss, who did not differ from each other nor from the controls. On the hidden figures test, no significant difference was found between RBD and LBD (NA LBD plus A) Ss; however, scores for A Ss were significantly lower than for NA LBD Ss (t = 3.307, $p < .005$). Impairment on the sorting and hidden figures tests was apparently a function of a language disorder rather than of general brain damage. One possibility is that this impairment is associated with loss of some intellectual ability associated with anatomical structures in the language area of the brain. (6 refs.) - *J. M. Gardner.*

Clinica delle Malattie
Nervose e Mentali
University of Milan
Milan, Italy

1166 SCHALLING, DAISY, & CRONHOLM, BORJE. Effects of early brain injury on perceptual-constructive performances in adults: A study on cerebrally palsied subjects without mental retardation by means of a marble board task. *Journal of Nervous and Mental Disease*, 147(6):547-552, 1968.

The persistence of visual-motor defects in 33 cerebral palsied (CP) adults (16 males, 17 females) was measured with a perceptual-constructive task—the copying of marble board patterns. Performance was evaluated for accuracy of pattern copying and method of construction. Method scores were classified as continuous, segmental, or incoherent depending on the placement of the marbles. Mean scores for both accuracy and procedure used were significantly lower in the CP group than in a control group (18 males with physical handicaps; CA 16-25). Deficient performance in tasks of this type may be due to functional disturbance in any link of the complicated gnosia-cognition-praxia sequence. Visual-motor defects observed in CPs are not solely due to a slower maturation rate, nor are they completely compensated for by increasing age. (13 refs.) - *V.G. Votano.*

Department of Forensic Psychiatry
Karolinska Institutet
10272 Stockholm, Sweden

1167 CRONHOLM, BORJE, & SCHALLING, DAISY. Cognitive test performances in cerebrally palsied adults without mental retardation. *Acta Psychiatrica Scandinavica*, 44(1):37-50, 1968.

The performance of CP adults without MR was significantly lower than that of control Ss on a non-verbal intelligence test (Raven Matrices) and on psychomotor speed tests (Identical Pictures and Stroop). CPs did not evidence memory retention defects on the 30 Word Pair and 20 Figure Tests. However, they demonstrated significantly lower immediate reproduction on the 20 Figure tests; a factor which may have been due to visual-perceptual disturbances or learning difficulties. On abstraction tests, CP Ss demonstrated significantly lower performances on the Grassi tests, but not on the Rothman and Weigl tests. There were significant between-group differences on visual perception tests (Figures, Hand, Benton, and Graham-Kendall), with CPs scoring significantly lower than controls. CP Ss were 30 males and 21 females (CA 15-29 yrs; IQ more than 80). CP adults without MR can have cognitive disturbances which are mainly due to perceptual defect, rather than to developmental lag. (26 refs.) - *J. King.*

Psychiatric Clinic—Karolinska Sjukhuset
Stockholm, Sweden

1168 BATEMAN, BARBARA. Automatic-sequential language deficiencies in mentally retarded children. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 716-719.

The Illinois Test of Psycholinguistic Abilities includes 3 subtests which assess language at the

automatic-sequential level, including the use of grammar and the reproduction of sequentially presented auditory and visual stimuli. MR children show short-term sequential memory deficits and incidental verbal learning deficits at the automatic-sequential level. Deficiencies in grammar become less marked with age and exposure to language patterns and may be related to problems of attending, beginning to learn, or input. (13 refs.) - *M.G. Conant.*

1169 HAUSMAN, RALPH M., & APFFEL, JAMES A. Differential effects on the ITPA profile of the final version of the Peabody Language Development Kits (Levels 1 and 2) with young disadvantaged Negro children. *IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports*, 5(4):1-19, 1968.

A comparison of the pretest, interim, and post-test Illinois Test of Psycholinguistic Abilities (ITPA) profiles of 90 disadvantaged young Negro children (mean IQ 87) who had received a daily 30-minute language stimulation exercise from the Peabody Language Development Kits—Levels 1 and 2 (PLDK)—for each day in the school year with those of a control group of 90 disadvantaged young Negro children (mean IQ 89) who participated in a regular classroom program showed no significant between-group differences in overall language gains for a 20-month period. The experimental group did make significant gains in expressive language, as measured by the Vocal Encoding and Auditory-Vocal Sequencing subtests of the ITPA. Both groups gained in other vocal auditory areas. These findings suggest that PLDK lessons should be coordinated with additional grammatical exercises in order to achieve maximum improvement in the major oral language defects exhibited by disadvantaged children. (20 refs.) - *J.K. Wyatt.*

1170 MECHAM, MERLIN J., & CASE, JAMES L. Comparison of two approaches to the assessment of verbal language development of mentally retarded children: A review. *Digest of the Mentally Retarded*, 5(1):29-32, 1968.

In a comparison of 2 versions of the Utah Verbal Language Development Scale, 45 institutionalized MR children were given the direct-test version and houseparents were given the informant-interview version 8 to 10 months later. The correlations were .809 between the version, .695 between the informant-interview version and MA (determined by standard test batteries), and .869 between direct-test version and MA. Split-half reliabilities were .985 for the informant-interview version and .931 for the direct-test version. (7 refs.) - *K. Lee.*

University of Utah
Salt Lake City, Utah 84112

1171 CARTWRIGHT, G. PHILLIP. Dimensions of written language of normal and retarded children. *American Journal of Mental Deficiency*, 73(4):631-635, 1969.

In an attempt to specify dimensions of written language ability, compositions of 240 normal and EMR students aged 8 through 15 were scored on 10 objective measures and analyzed by multivariate statistical procedures. Measures of fluency, structure, and vocabulary provided a satisfactory account of the matrix variance. The results suggested a heuristic model for the analysis of written language. (22 refs.) - *Journal abstract.*

Pennsylvania State University
University Park, Pennsylvania 16802

1172 HARRISON, ENID M. The brain-damaged child and writing problems. *Academic Therapy*, 4(1):13-21, 1968.

A writing test for children with faulty integration and interpretation of environmental factors by the brain differentiates among perceptual disabilities and provides information which allows the therapist to design an individual remedial program. To write, a child must be able to draw, position, and reproduce shapes. Necessary writing abilities are tested in the areas of visual perception, visual-spatial relationships, visual-motor ability, eye-hand coordination, and memory recall. The test uses line drawings, pictures, and concrete objects. A wide variety of recognition, matching, discrimination, coordination, and drawing tasks are used to identify specific writing problems. Twelve case histories are included. (4 refs.) - *S. Markworth.*

Forest Town School for Cerebral
Palsied Children
Johannesburg, South Africa

1173 CURRIE, CATHERINE. Evaluating function of mentally retarded children through the use of toys and play activities. *American Journal of Occupational Therapy*, 23(1):35-42, 1969.

An occupational therapy evaluation of function of MR children emphasizes voluntary performance and the use of familiar toys and play activities in a structured environment. The evaluation focuses on the functional potential areas of neuromuscular status, performance ability, activities of daily living, sensory responses, perceptual-motor abilities, and laterality. Fifty-six non-retarded children were tested to establish norms in performance abilities in selected activities at kindergarten through second grade levels. The evaluation focuses on what the child does, his approach to problem solving, and disturbances which affect function. The data it provides can be used as an index of a child's potential and to develop programing and management guidelines. (13 refs.) - *B. Bradley.*

Children's Medical Center
Dallas, Texas 75200

1174 BRICKER, DIANE D., BRICKER, WILLIAM A., & LARSEN, LAWRENCE A. Operant audiometry manual for difficult-to-test children. *IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports*, 5(19):1-30, 1968.

Since most retardates manifest impairment in language ability, effective language programs require the determination of hearing levels, which is often a

difficult task with low-functioning children. Operant conditioning audiometry provides an accurate, reliable, and relatively inexpensive measure of hearing ability. The S is trained to push a button in the presence of a stimulus which is usually a tone or buzzer. Initially, the tone is directed through a free-field speaker; later earphones are introduced to provide a more specific measure of the tone. At first, the S is rewarded for each button press when a stimulus is present. Gradually, the ratio of responses to rewards is increased until 7 responses are necessary for one reward. Different tone frequencies are then used as stimuli to determine hearing level. (6 refs.) - *J. M. Gardner.*

1175 BOER, AREND P. Application of a simple recording system to the analysis of free play behavior in autistic children. *Journal of Applied Behavior Analysis*, 1(4):335-340, 1968.

A simple system which included the use of a standard stenograph was developed to record the free-play behavior of autistic children. Categories measured included: adult, child, and self-directed behaviors; inanimate object manipulation; rapid energy expenditure; visual survey; locomotion; and resting. Interscorer reliability between 2 observors was 93%. Intrascorer reliability (the same observer recording data from TV recording after 6 wks) was 95%. Observations of 4 autistic children (CA 4-5) during one hour free-play revealed that the Ss spontaneously engaged almost exclusively in object manipulation. This type of recording system could be used to record general changes in behavior which may result from specific behavioral modifications. (15 refs.) - *J.M. Gardner.*

University of South Dakota
Department of Psychology
Vermillion, South Dakota 57069

1176 WOLF, ENID G., & RUTTENBERG, BERTRAM A. Sound acceptance in the autistic child. *Journal of Special Education*, 2(4):353-359, 1968.

A scale which measures the acceptance of sound by autistic children consists of 10 levels, ranging from complete oblivion to sound to age appropriate responses. To account for the fact that the same S could be functioning on a number of different levels at the same time, each S is assigned a total of 10 points which can be distributed over the 10 levels, with the greatest weight on levels where the response is greatest. The S's score is the total of the points assigned to a level times the level. Total scores theoretically range from 10 to 100. Normative data on autistic Ss in 3 different environments were taken. In addition, retesting of 6 Ss in a non-stimulating environment after one year revealed a decrease in responsiveness to sound. This scale should be useful in differentiating between autistic and retarded Ss, in measuring differential responsiveness in different environments, and as a measure of change. (12 refs.) - *J.M. Gardner.*

Day Care Unit for Autistic Children
Philadelphia
Pennsylvania 19100

1177 FEURSTEIN, R. The Learning Potential Assessment Device. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 562-565.

The correct assessment of the learning potential of the EMR and the culturally deprived child cannot be made by using conventional psychometric methods; the assessment should be made by using a diagnostic procedure with a dynamic goal—to assess the modifiability of the child's behavior. The Learning Potential Assessment Device is a test instrument in which the examinee is taught a cognitive principle in a pictorial-concrete, spatial, logico-verbal, or numerical modality and then presented with variations of the initial task. Capacity to grasp a given principle, amount of time required to teach it, and the extent to which it can be used in new situations can be determined. This device also allows relevant failure factors to be identified and reveals faulty work habits and attitudes. (No refs.) - *M.G. Conant.*

1178 MUELLER, MAX W. Prediction of achievement of educable mentally retarded children. *American Journal of Mental Deficiency*, 73(4):590-596, 1969.

The predictive validity of 6 tests of ability and a battery of learning tasks was evaluated against a criterion of tested achievement 2 years after initial testing. A sample of 89 EMRs were tested. Results suggested that the validity of the Primary Mental Abilities Test, the Pictorial Test of Intelligence, and the Illinois Test of Psycholinguistic Abilities compared favorably with the Stanford-Binet. The data did not indicate adequate validity for the Peabody Picture Vocabulary Test or the Colored Progressive Matrices. The learning tasks, especially the Modified Prognostic Reading Test and a paired associate task, also appeared promising as predictors of achievement. (14 refs.) - *Journal abstract.*

Bureau of Education for the Handicapped
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1179 SCHUCMAN, HELEN. The development of an educability index for the trainable child. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 571-573.

Three hundred TMR children (mean CA 95.16 mos; mean IQ 36.18), who attended special classes and/or clinics for the retarded, were tested individually before training, trained according to standard training procedures, and retested. Testing included: gross shape, size, and color discriminations; measured transfer abilities; imitative abilities; and rote memory skills. The results indicated that learning scores obtained from the tests were better predictors of classroom success and

social competence than initial test scores, and that learning scores were more stable and consistent. (No refs.) - *M.G. Conant.*

1180 UBA, A. Intelligence tests and mental retardation. *Qawi Qalbek*, Malta Welfare Society for the Mentally Handicapped), (6):11-13, 1968.

Intelligence may be variously defined, and tests of intelligence provide a measure of difference in performance rather than a direct measure of intelligence. Intelligence is based on the structure of the central nervous system, especially the brain, and on the organism's ecology. The first intelligence test was developed by Binet and Simon, and after 3 revisions, this test is currently used to differentiate between various age groups. The Wechsler Adult Intelligence Scale, the Wechsler Intelligence Scale for Children, and performance tests are also used as measures of intelligence. The incidence of MR is approximately 3/1,000 population and MRs are classified by their IQ scores. Individuals with IQs below 25 cannot care for their own personal needs and achieve maximum MAs of about 3 years. The 25-50 IQ range includes persons who can learn simple tasks. Individuals with IQs between 50 and 70 can learn to care for themselves and may be able to have an occupation; Their final MAs are in the 8 to 12 year range. (No refs.) - *V.G. Votano.*

No address

1181 FELDMANN, H. Considerations sur l'evaluation des arrieres mentaux presentant des privations culturelles (Evaluation of culturally deprived mentally retarded persons). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 566-568.

The learning potential of culturally deprived children is a function of psychomotor potential and plasticity of the neurological substratum. The Jaques-Dalcroze method of psychomotor reeducation is based on 48 progressive exercises in which the child begins by imitating the teacher, later acts together with the teacher, and finally, performs alone to develop creativity. The presentation of a dynamic, stimulating model concomitantly with constant feedback make this an efficient method for evaluating the learning potential of culturally deprived children and for demonstrating the plasticity of their adaptive capacities. (No refs.) - *M. G. Conant.*

1182 FORD, JOE H. Psychologic evaluation. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 3, p. 39-52.

Part of the comprehensive evaluation of the MR is a psychological evaluation which involves the administration, scoring, and interpretation of psychological tests. Test scores are subject to the influences of situational and socioeconomic factors and should be interpreted with care. They provide a standardized measure of intellectual and personality function and enable the comparative examination of individuals. Specific areas of concern (such as language) can be individually assessed. (6 refs.) - *J. M. Gardner.*

1183 TEAGUE, FAY M. Education information. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 4, 53-77.

Various types of tests are used to provide educational information concerning children; the most common group intelligence tests are the Henmon-Nelson and the Lorge-Thorndike, and the most popular individual tests are the Stanford-Binet and the Wechsler Intelligence Scale for Children. A highly regarded achievement test is the Stanford Achievement Test, although the Iowa Test of Basic Skills is another useful tool. Other more specialized tests include the Gates-MacGinitie Reading Test, the Marianne Frostig Developmental Test (visual perception), the Illinois Test of Psycholinguistic Abilities (language), and the Wepman Auditory Discrimination Test (hearing). It is important to select a test which is appropriate to the child's age, socioeconomic background, and problem and to understand scoring procedures and the interpretation of test scores. (5 refs.) - *J.M. Gardner.*

1184 STEPHEN, ELSPETH. Psychological assessment of severely sub-normal children in hospital with associated physical handicap. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 760-762.

Of 66 MR children in the hospital in January, 1967, 24 were TMR (IQ 20-50) and 42 were SMR (IQ less than 20). Thirty-eight percent had epilepsy, 33% had CP, 23% had hearing defects, and 20% had visual defects. Only 4% of the TMRs had 2 or more handicaps, compared to 47% of the SMRs. All but 3 of the children were evaluated with tests of intelligence, functional attainment, and/or daily living skills. Intelligence assessments were used to make education and training decisions. Data on living skills were used to make suggestions and assess progress. (3 refs.) - *M.G. Conant.*

1185 BLAZER, JOHN A. Psychological testing in a Head Start program. *Training School Bulletin*, 65(2):65-70, 1968.

Normative data on the personality, intellectual, and physical characteristics of 45 culturally deprived children (44 Negro; 1 Caucasian) enrolled in a Head Start program were collected. Twenty-one males (mean CA 5 yrs 1 mo) and 24 females (mean CA 4 yrs 10 mos) were examined by a psychologist using measures which included the Stanford-Binet (L-M), the Peabody Picture Vocabulary Test (Form B), and the Vineland Social Maturity Scale. Speech problems were most common and were found in 44% of the Ss. Other problems were

signs of organicity (33%), medical problems (15%), hearing problems (13%), and signs of MR (11%). The frequencies of 4 personality types: shy-seclusive (SS); overanxious-neurotic (ON); hyperactive-distractible (HD); and undomesticated (U) were examined. Percentages of children falling into each of these categories were 18, 15, 38, and 29, respectively. Aggressive syndromes (HD and U) were twice as common as inhibited syndromes (SS and ON). The importance of early detection and treatment was emphasized. (3 refs.) - *J.M. Gardner.*

Mental Health Clinic
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1186 MEIN, R. Changes in intelligence test scores in cerebral palsied patients under treatment. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 429-433.

Of 103 patients in a special unit for the assessment and treatment of CP, 59 patients were reassessed several times during treatment. The majority (68%) showed no change in test scores or wide variation in IQ, 8% showed a drop in IQ, and 15% evidenced upward changes in IQ which could not be interpreted. Eight percent showed IQ changes which consistently increased throughout treatment and were accompanied by physical and social improvement. This group of 5 children started treatment before the age of 2 1/2 years. In some of these cases, there is evidence that full potential has not yet been reached. (No refs.) - *M.G. Conant.*

1187 KHANNA, J.L., ed. *Brain Damage and Mental Retardation: A Psychological Evaluation.* Springfield, Illinois, Charles C. Thomas, 1968, 210 p. $8.75.

These papers were presented at an institute on brain damage and MR held at the University of Tennessee College of Medicine in February 1966. The current status of the broad theoretical aspects and specific problem areas of MR and brain damage are assessed by internationally acknowledged experts in the fields of experimental, clinical, social, and developmental psychology, psychiatry, neurology, and pediatric neurology. Topics include conceptual problems in the evaluation of brain damage, the psychological assessment of brain damage, the effects of cultural deprivation, intellectual assessment, parent-child relationships, parent counseling, and the discriminative validity of psychological tests. This book should be of interest to psychologists, psychiatrists, pediatricians, neurologists, educators, and special educators. (170 refs.) - *J.K. Wyatt.*

CONTENTS: An Overview of the Problem of the Psychological Evaluation in Mental Retardation (Leland); Conceptual Issues in the Evaluation of Brain Damage (Ross); Psychological Assessment of Deficits Associated with Brain Lesions in Subjects with Normal and Subnormal Intelligence (Reitan); The Discriminative Validity of Psychological Tests as Indices of Brain Damage in the Retarded Child (Barclay); Cultural Deprivation— Its Role in Central Nervous System Functioning (Kennedy); Intellectual Evaluation of Children with Major Sensory Deficit (Boone); The Role of Interpretive Parent Interview in Diagnoses of Children (Quast); Problems of Evaluation of Residual Effects of Head Injury (Mackey); Indications for Psychological Evaluation in Mental Retardation and Neurological Disorders (Jabbour).

1188 LELAND, HENRY. An overview of the problem of the psychological evaluation in mental retardation. In: Khanna, J.L., ed. *Brain Damage and Mental Retardation: A Psychological Evaluation.* Springfield, Illinois, Charles C. Thomas, 1968, Chapter 1, p. 3-16.

In the years since President Kennedy's 1963 message to Congress on mental illness and MR, community services for MRs have been expanded, a clearer description of the MR population requiring support and help has been developed, and the evaluation of community treatment and training potential in terms of the development of services has begun. Research on the number of MRs in the population has produced conflicting results; one study revealed that 3% of the post-school population and 10% of the school-age population were MR. The post-school adaptive behavior of the missing 7% apparently enabled them to cope with community living. Treatment, training, and rehabilitation take place in local facilities, comprehensive centers, and residential institutions. Evaluation should provide a definition of a child's condition and specify etiology, indicate current functioning level, and suggest treatment or training for the modification and/or improvement of present behavior. Evaluation by local facilities has the potential for dealing with MR at its source and preventing the development of its more severe forms. The preventive qualities of preschool programs for culturally deprived children may eventually reduce the need for special education and EMR programs. A reduction in the number of EMRs would allow evaluation and treatment emphases to focus on TMRs. (6 refs.) - *J.K. Wyatt.*

1189 ROSS, ALAN O. Conceptual issues in the evaluation of brain damage. In: Khanna, J.L., ed. *Brain Damage and Mental Retardation: A Psychological Evaluation.* Springfield, Illinois, Charles C. Thomas, 1968, Chapter 2, p. 20-39.

Psychologists can make constructive contributions to the development of brain-damaged children when they focus on the educational question of maximizing potential rather than on the medical question of identifying brain injury. Evaluation of brain-damaged children should have a developmental focus and should distinguish between adults and children, differentiate between children living at home and in institutions, and consider the interaction between age at time of damage and time elapsed since damage. Psychologists should base evaluations on observable stimulus-response events, and draw inferences about mediating processes which refer to function rather than structure. The behavioral characteristics of the organic syndrome are not adequate criteria for brain damage because of great individual differences among brain-damaged children. Analyses of a child's performance on tasks involving concept

formation and the purposive use of language appear to provide data on the development of differentiation and integration processes which may be used to plan training programs. Research findings indicate that evaluative procedures which have proven most helpful with MR children focus on learning, the components of complex behavior, the simple components of response differentiation, stimulus discrimination, and control of overgeneralization. (18 refs.) - *J.K. Wyatt.*

1190 REITAN, RALPH M. Psychological assessment of deficits associated with brain lesions in subjects with normal and subnormal intelligence. In: Khanna, J.L., ed. ***Brain Damage and Mental Retardation: A Psychological Evaluation.*** Springfield, Illinois, Charles C. Thomas, 1968, Chapter 3, p. 44-87.

The battery of tests routinely used to infer cerebral damage at the Neuropsychology Laboratory at the Indiana University Medical Center exploits the major strengths of a variety of methods, attempts to obtain broad coverage, and has demonstrated results which have a valid relationship to the organic integrity of the brain. Tests included in this battery are Halstead's Neuropsychological Test Battery, the Wechsler Intelligence Scale for Children or Wechsler-Bellevue Scale (Form I), the Trail-Making Test, an aphasia screening examination, tests of sensory-perceptual functions, the Minnesota Multiphasic Personality Inventory or a similar test developed for children aged 9 to 14 years, and an experimental battery of tests for children aged 5 to 8 years. Functions covered by this battery include simple motor and sensory-perceptual functions, psychomotor problem-solving procedures, the symbolic and communication aspects of language, the ability to deal effectively with visual-spatial relationships in manipulatory settings, abstraction and concept formation skills, and general intelligence. Older children have been studied for more than 12 years, and younger children, with and without brain lesions, have been studied for approximately 8 years. Case studies of problems concerned with mild impairment following brain trauma, behavioral changes and their possible relationship to previous head injury, academic achievement, and the identification of the underlying cause of MR illustrate the range and types of impairment accompanying brain damage, the usefulness of neuropsychological evaluation in the absence of direct neurological evidence of brain damage, and the application of various inferential methods to individual cases. (37 refs.) - *J.K. Wyatt.*

1191 BARCLAY, A. The discriminative validity of psychological tests as indices of brain damage in the retarded child. In: Khanna, J.L., ed. ***Brain Damage and Mental Retardation: A Psychological Evaluation.*** Springfield, Illinois, Charles C. Thomas, 1968, Chapter 4, p. 94-105.

Although the discriminative validity of current psychological tests is adequate for differentiating between normals and MRs with respect to brain damage, the data they provide have low or questionable utility unless they specify the manner and degree of the existing differences in a clinically valid and psychologically productive manner. Controversy over the validity of the unitary versus the particularistic approaches is a central issue in the assessment of the effects of brain damage. The general theory of brain damage is moving away from the adoption of either of these approaches and toward a view that holds that brain functions are hierarchically ordered and that the effects of brain damage are dependent on the cerebral insult and on the location and extent of the cerebral lesion. Although cognitive deficits may be a concomitant of brain damage, they do not explain all the observed variance. This appears to be related to the age at which the brain damage occurred. Early brain damage may have a greater effect on cognitive development than late damage, because it appears to produce deficits in the capacity to acquire and manipulate new learning. The effects of brain damage on perceptual development have not been proven. Research literature on perceptual deficit is inconclusive, and clinical and experimental evidence on the actual incidence of perceptual deficit in MRs is not impressive. (12 refs.) - *J.K. Wyatt.*

1192 BOONE, JERRY N. Intellectual evaluation of children with major sensory deficit. In: Khanna, J.L., ed. ***Brain Damage and Mental Retardation: A Psychological Evaluation.*** Springfield, Illinois, Charles C. Thomas, 1968, Chapter 6, p. 129-140.

In order to develop tests which allow for the valid intellectual assessment of blind and deaf children, the abilities which are significant for the achievement of children with major sensory deficits must be identified and reasonable success criteria must be selected from among the goals of the many different special education programs. At the present time, specialized tests and altered versions or selected parts of common instruments designed for normal children are used to test blind and deaf children. These measures have a variety of shortcomings when used with the deaf and blind, and the measures of intellectual function they provide are limited. Performance items are frequently used to evaluate the deaf even though verbal sections provide the best correlation with school achievement in a normal population. The Hayes-Binet test is a modification of the Stanford-Binet scale for use with the blind. It utilizes only verbal items and does not provide a measure of conceptual ability. Performance tests which are commonly used with the deaf include some subtests on the Wechsler Performance Scale, the Arthur Adaptation of the Leiter International Performance Scale, and the Nebraska Tests of Learning Aptitudes for Young Children. Problems involved in test administration include communication, the establishment of trust, and the provision of adequate reinforcement. (21 refs.) - *J.K. Wyatt.*

1193 JABBOUR, J.T. Indications for psychological evaluation in mental retardation and neurological disorders. In: Khanna, J.L., ed., ***Brain Damage and Mental Retardation: A Psychological Evaluation.*** Springfield, Illinois, Charles C. Thomas, 1968, Chapter 9, p. 183-193.

Psychological evaluation aids in planning and management for patients with preventable disorders or treatable conditions with features which may include learning problems, behavior problems, convulsive disorders, or minimal cerebral dysfunction. Unusual

facial, muscular, or skin features, or body build observed in neurological disorders may indicate the presence of cerebral dysfunction which requires psychological evaluation. Research evidence suggests that the modification of mental, learning, and psychological behavior may involve many areas of the brain. MR and brain damage in children appear to result from the alteration of the pathways serving several brain structures. Psychological evaluation can provide for the differentiation and designation of specific learning and emotional problems involved in minimal brain dysfunction, convulsive disorders, and convulsive equivalent and psychomotor convulsions. (20 refs.) - *J.K. Wyatt.*

1194 DENHOFF, ERIC, HAINSWORTH, PETER K., & SIQUELAND, MARIAN L. The measurement of psychoneurological factors contributing to learning efficiency. *Journal of Learning Disabilities*, 1(11):636-644, 1968.

The Meeting Street School Screening Test for Learning Disorders (MSSST) is described in terms of its value as a neurologically-oriented test to discriminate children that fail in school. Factors considered to be of major importance in the construction of this screening device for learning disorders are: wide range sampling; item objectivity and power; reliability; validity; and individual performance level. Validity and reliability data are described for selected samples. The difference between disease and functional inefficiency is also stressed. Psychoneurological inefficiency is described as children's inability to process sensory information to produce an effective motor response. This screening device is designed to give a range of objective scores for several areas of psychoneurological functioning. To develop appropriate norms, 1,000 normal school children (CA range 5 to 7 1/2 yrs) have been involved in the preliminary survey. (13 refs.) - *B. Bradley.*

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1195 BUDOFF, M. A learning potential assessment procedure: rationale and supporting data. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 569-570

A reasoning task which utilizes a Kohs Block Design procedure was administered to institutionalized EMR adolescents (CA 17-25 yrs) prior to a coaching session, one day after the session, and one month later. Mean increase in proficiency was compared with that of normal controls. The experimental group consisted of gainers who profited from coaching, nongainers who did not profit from coaching, and high scorers who scored higher prior to coaching. All 3 experimental groups showed similar verbal ability; however, the gainers and high scorers had higher performance IQs and performed similarly to normals of the same CA on Kounin's rigidity tasks. Results support the hypothesis that the deficit in Ss who profit from experience is largely in the verbal area and these Ss do well on non-verbal tasks when a procedure which does not penalize lack of prior experience is used. (No refs.) - *M.G. Conant.*

TREATMENT AND TRAINING ASPECTS—EDUCATIONAL

1196 MEYEN, EDWARD L. The education of the mentally retarded—A systematic error in curriculum development. *Education and Training of the Mentally Retarded*, 3(4):164-168, 1968.

The curriculum of MR education should be structured by curriculum specialists from general education. Present emphases are on identifying the MR, setting up separate classes, and obtaining teachers. Beyond this point, general educators lose interest, and class structuring falls to the special class teacher. A systematic curriculum with a designated content is important for MRs; it should be formulated by a general-education curriculum specialist who will work with special educators to formulate methods and goals. Some research shows that present special education classes are not teaching MRs any more than they would learn in a regular class and that teaching inconsistency is rampant. The special education teacher has to interpret goals and try to teach appropriate skills and information. Educational objectives must be clearly developed, stated, and reflected in a definite curriculum. (5 refs.) - *M. Plessinger.*

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Iowa City, Iowa 52240

1197 LALLY, ROBERT C. Behavioral goals for the mentally retarded. *Instructor*, 78(3):112-113, 1968.

A curriculum specifically designed to teach behaviors that are learned concomitantly by nonretarded children is needed for the MR. Behavioral goals emphasizing specific training in the areas of people, places, things, classroom jobs, safety, recreation, clothing, food, and shelter will aid the child in making the transition from

home to school and in formulating new habits. Individualized activities and cooperation of the school and home are necessary to help the MR reach a high level of sophistication in learning and using social skills. An outline of a suggested curriculum is included. (No refs.) - *M.E. McKee.*

Herbert Hoover Junior High School
Rockville, Maryland 20850

1198 O'CUILLEANAIN, T. The education of mentally handicapped children. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 926-928.

The Irish Commission of Inquiry on Mental Handicap recommended that schools for the mildly mentally handicapped be separate from those for the moderately mentally handicapped, that some sort of special education be provided within the national school system for all mildly handicapped children who could benefit from it, and that slow learners in remote towns, who cannot be brought to special classes daily, live in hostels near special schools during the week and return home on weekends. When mild and moderate MRs are integrated in the same school, the growth of schools for the mildly MR has been limited, and teachers have tended to proceed too slowly. (No refs.) - *M.G. Conant.*

1199 PORTRAY, RENEE. L'enseignement special pour les arrieres mentaux (Special education for the mentally retarded). *Amentia*, (December): 15-21, 1968.

The area of special education in Belgium is fraught with misconceptions, poor classification of the types of MR, lack of positive action and qualified personnel, and poor overall coordination. At present, the Ministry of Education designates as MR all children with IQs below 85; however, this practice does not conform to international terminology. More schools are needed, and educational programs should be extended beyond the traditional limits of 6-14 years. Class size should be reduced to a maximum of 12 pupils, with a special educator and an aide for each class. Where transportation problèms exist, school bus services should be provided. More teachers qualified for special education must be trained. (No refs.) - *S.L. Hamersley.*

No address

1200 BORKOWSKI, MARY RAMONA. The development of special education for mentally retarded children in the Newark Archdiocesan schools from 1930-1965. *Research Abstracts: Cardinal Stritch College*, Issue 9:56-57, 1968.

The special education program in the archdiocese of Newark (New Jersey) has been in existence since 1930 and is a permanent part of the total education program. Over the years, the program has gradually increased in size and effectiveness. The majority of children in the program are mildly retarded, and boys generally outnumber girls in terms of referral and placement. Progress in the program is measured by bi-annual achievement tests. (No refs.) - *J.M. Gardner.*

No address

1201 ROSEBLADE, PHYLLIS SHIRLEY. Teaching a special class in an ordinary school. *Remedial Education*, 4(1):43-46, 1969.

An elementary special class in a normal school in England provides basic learning experiences, a language development program, and experiences aimed at building self-confidence. The class may have children with speech or hearing problems as well as emotionally maladjusted, culturally disadvantaged, and MR children; all of whom need to be in a small class. Classes for these children should have adequate and consistent staffing and suitable materials. The advantages of keeping the class in a normal school are the ease of promotion and the fact that the children are not removed from a normal environment. (No refs.) - *M. Plessinger.*

Bushbury Hill Junior School
Wolverhampton, England

1202 PARK, JEANNE S. They're sharing something special. *American Education*, 5(3):23-25, 1969.

Educational programs in Richmond County (Georgia) illustrate that Title I funds can be used to provide maximum benefits for mentally and/or physically handicapped children. Fifty special education classes are conducted in 18 regular schools and provide individualized instruction for 900 full-time students. MRs comprise the largest group (500); the remaining children have hearing and visual disabilities, brain damage, emotional disturbances, speech defects, and multiple handicaps. In addition, special 1/2-day classes are provided for 24 deaf preschool children, and visiting teachers instruct 150 children confined to homes and hospitals. Title I provides funds for a social worker, 8 MR specialists, and 30 teacher aides to help approximately 50 specially trained teachers who are salaried by the school board. Special equipment available through Title I funds included: four $12,000 school buses, specially equipped with hydralic lifts to assist wheelchair patients; a machine which duplicates braille books; wireless headsets to assist hearing deficient children; and special tape recorders for speech therapy. Food services, remedial activities, and diagnostic and testing centers augment this program. (No refs.) - *V.R. Shaffer.*

No address

1203 SHIF, Z.I. The major developmental stages in mentally retarded school children. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 744-746.

Soviet special schools have demonstrated that teaching which draws on the potentialities of oligophrenic

children significantly advances their mental and moral development. During the first 5-6 years of special education, teachers and students work hard as the children slowly master the specified cognitive activities in which they are retarded. Then, school studies become each child's main and habitual activity and the subject of his emotions, and the influence of education on development increases tremendously. The memory develops more intensely, narrative speech improves, and the scope of knowledge broadens. During the last 2 years of special education, there are great advances in the speed and level of development and formation of the personality. Manual work is important as the pupil prepares for outside employment. (No refs.) - *M.G. Conant.*

1204 ANDERSON, ROBERT M., & STEVENS, GODFREY D. Practices and problems in educating deaf retarded children in residential schools. *Exceptional Children*, 35(9):687-694, 1969.

Of the 1,632 residents in the 6 public residential schools (which responded to inquiry forms) for the deaf, 304 (19%) had IQs below 83 (operationally defined as deaf MR), but only 132 were classified as MR by the school staffs; however, 3 schools reported that they did not classify pupils as MR. In addition to deafness and intellectual deficit, 73 children had one or more additional handicaps. The respondents considered hearing loss the most educationally handicapping condition in 188 cases (62%) and intellectual deficit the most handicapping condition in 46 cases (15%). The mean grade level expectancy for 117 of the 304 with an intellectual deficit was 4.3—estimates were considered impossible for 80 Ss and not provided for 107. As for the utility of intelligence tests, the respondents considered such tests useful in programing for those with an intellectual deficit. These data point up the similarity between low intelligence deaf children and EMR children and indicate that more realistic educational and vocational training for deaf MR children is needed. (29 refs.) - *K. Lee.*

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1205 QUAY, HERBERT C. The facets of educational exceptionality: A conceptual framework for assessment, grouping, and instruction. *Exceptional Children*, 35(1):25-32, 1968.

A 41-cell theoretical framework is designed to identify variables in the learning process which can be manipulated in the classroom to effect remediation. The specific characteristics of children with MR, behavior disorders (BD), minimal cerebral dysfunction (MCD), and cerebral palsy (CP) can be placed within the parameters of input, response, and reinforcement at points where learning functions intersect learning modalities. Functions include sensory acuity in receiving stimuli, dexterity in responding, general orientation toward the stimulus, specific perception of the stimulus, organization of response, failure of storage of the stimulus, delay of response, effectiveness of reinforcement, delay of reinforcement, amount and quality of reinforcement, and ratio of correct response followed by reinforcement. The modalities are sensory (tactile, auditory, visual), response (motor, verbal), and reinforcement (primary sensory, social, information). Each of the 41 cells represents a measurable behavior. Course content may be determined by test results. The scheme calls for class grouping according to specific educational defects rather than according to MR, BD, MCD, or CP. Perhaps the most serious drawback to this framework is the lack of sufficient diagnostic tools. Many functions (especially, perception, effect of reinforcement, and failure to store) are difficult to measure. (19 refs.) - *S. Markworth.*

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1206 PREHM, H.J. Practical implications of research on the learning and retention performance of the retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 861-864.

Since the rote learning performance of MRs can be improved by distributed practice and increased allowance of response time, short, frequent practice sessions on daily work tasks should be provided. The learning goal should be accuracy of response rather than speed of performance, as MRs can learn to respond accurately if given sufficient time. Maximization of learning and retention will occur if an easy pace of learning which requires accuracy is coupled with distributed practice and overlearning. (7 refs.) - *M.G. Conant.*

1207 VIRGINIA STATE DEPARTMENT OF HEALTH. *A Helpful Guide in the Training of a Mentally Retarded Child.* Richmond, Virginia, 1968, 23 p.(Price unknown).

The training, management, planning, and development of the MR child are discussed and specific information about each aspect of development is included. Training should be based on readiness, praise, patience, repetition, consistency, and kindness and should include the areas of clothing, tidiness, feeding, manners, grooming, play activities, and toilet training. The training of a brain-injured child should provide for the reduction of frustration and stimuli and for an increase in attention span. Planning for puberty should include teaching which emphasizes modesty and provides answers for questions about sex and masturbation. Charts of developmental stages and their relationship to MA are provided. This guide is intended for use by physicians, nurses, teachers, social workers, psychologists, and parents. (34-item bibliog.) - *V.G. Votano.*

CONTENTS: General Rules for Training; Training in Specific Areas; Management of the Neurologically Impaired Child; The Mongoloid Baby; Planning Toward Puberty; Development—According to Mental Age.

1208 DE TELLECHEA, MARIA CRISTINA. Orientaciones didacticas para un aula de deficientes profundos (Didactic orientations for a school class of severely mental deficients). *Ninos*, 1(1):67-76, 1968.

The selection of courses for SMR children is based on the premise that the main objective is to educate, and the acquisition of knowledge is not the end but rather the means by which progress is attained. A list of courses together with a presentation of their objectives and the activities needed to fulfill these objectives is given. The list includes physical education and hygiene, understanding of nature, social studies, drawing, painting, modeling, music, language, handicrafts, writing, reading, and arithmetic. (No refs.) - *G. Pura.*

No address

1209 TANNENBAUM, ABRAHAM J., ed. *Special Education and Programs for Disadvantaged Children and Youth.* Washington, D.C., Council for Exceptional Children, 1968, 131 p. $3.50.

These papers demonstrate the application of special education knowledge and methods to the instruction of disadvantaged children. Knowledge obtained from special education work with physically, mentally, and emotionally deviant children offers promising hypotheses for the education of the underprivileged. Programs for the disadvantaged should be based on an awareness of the heterogeneity of children, subgroup variability, and the dangers inherent in dealing almost exclusively with symptomatology. The target population is identified, and the behavior disorders and cognitive and perceptual problems of children from deprived backgrounds are discussed. Special education knowledge from programs for children with learning disabilities, MR, orthopedic handicaps or health impairments, and visual handicaps can be used to design programs for the disadvantaged. Speech therapy should be used to aid in the development of language. This book should be of interest to educators, special educators, speech therapists, social workers, and psychologists. (163 refs.) - *J.K. Wyatt.*

CONTENTS: A View of the Target Population (Gordon); Behavior Disorders in Children from Deprived Backgrounds (Wilderson); Problems of Perception and Cognition among the Disadvantaged (Kopp); The Disadvantaged Gifted (Gallagher); Contributions of Programs for Children with Learning Disabilities (Haring and Nolen); Contributions of Programs for the Mentally Retarded (Sengstock); Contributions of Programs for Children with Orthopedic Handicaps and Health Impairments (Carr); Contributions of Programs for the Visually Handicapped (Ashcroft); Contributions of Speech Therapy (Jones).

1210 GORDON, EDMUND W. A view of the target population. In: Tannenbaum, Abraham J., ed. *Special Education and Programs for Disadvantaged Children and Youth.* Washington, D.C. Council for Exceptional Children, 1968, Chapter 1, p. 5-18.

Educational intervention programs for the disadvantaged should be based on a conceptual model in which the teaching-learning process for any learner is seen as involving the nature, quality, functional patterning, and dialectical relationships of basic cognitive processes, affective mechanisms, and achievement systems. Developmental learning disturbances in disadvantaged children interact, interpenetrate, overlap, and are affected by temporal and sequential ordering and disordering. The descriptions of measured functional levels provided by present intelligence and achievement tests do not permit an understanding of processes and are not adequate for disadvantaged children. Meaningful levels of intervention may emerge from assessment procedures which focus on process- mechanism interactions. Disadvantaged children evidence a marked lack of attention to, involvement with, and concentration on the content of their academic experience. They frequently possess insufficiently developed work skills and evidence less motivation and lower aspiration than middle and upper class children. Data on the attitudes of disadvantaged children toward themselves, others, the ingroup, and the outgroup could be used to increase educational aspiration, motivation, and involvement. The training of school personnel to work with disadvantaged populations should emphasize the development of mastery of content, mastery of self, competence in the qualitative appraisal of relevant behavior and learning, and experimentation and evaluative skills. (31 refs.) - *J.K. Wyatt.*

1211 HARING, NORRIS G., & NOLEN, PATRICIA. Contributions of programs for children with learning disabilities. In: Tannenbaum, Abraham J., ed. *Special Education and Programs for Disadvantaged Children and Youth.* Washington, D.C., Council for Exceptional Children, 1968, Chapter 5, p. 59-70.

In addition to the provision of an advantaged environment, remedial programs for disadvantaged children with learning disabilities should have carefully defined target populations, clearly defined outcomes, a specific behavioral emission rate, clearly defined circumstances under which goal behaviors are expected to occur, and measurement precision beyond that obbtained with achievement tests. A comparison of 2 programs for disadvantaged adolescents revealed that the identification of specific outcomes and of the precise relationship of behavior change to manipulatable variables requires contingency control of the learning environment. Enriched preschool environments based on the control of response-produced contingencies allow a sequential continuum of reinforcers to establish behavior and provide an effective basis for instructional procedures. A case study of a disadvantaged child with severe learning disorders demonstrates the value of remedial techniques based on a richly expanded environment and control of the contingencies of responding. (12 refs.) - *J.K. Wyatt.*

1212 SENGSTOCK, WAYNE L. Contributions of programs for the mentally retarded. In: Tannenbaum, Abraham J., ed. *Special Education and Programs for Disadvantaged Children and Youth.* Washington, D.C., Council for Exceptional Children, 1968, Chapter 6, p. 70-96.

Compensatory education programs for disadvantaged children should borrow those concepts and procedures from special education programs which have a high probability of success and should use any other concepts and methods which will help these children to reach their potential. MR and disadvantaged children are similar in that each group begins formal education at approximately the same level and each requires training to develop skills which will enable them to think at Bruner's enactive and iconic representational levels. A proper education program will enable deprived children of normal or above intelligence to function at Bruner's third level—symbolic representation. Concepts and procedures used with MRs which may be helpful with disadvantaged children include diagnosis, specially trained teachers, special curriculum, methods of instruction (such as, the use of concrete materials, operant conditioning, field trips, and small classes), preschool training, counseling and assistance for parents, special educational materials, and child guidance and counseling. (61 refs.) - *J.K. Wyatt.*

1213 ROBERTS, ESTHER H. *Their Beginning Years: For Parents and Teachers of Our Young Retarded Children.* New York, New York, Vantage Press, 1969, 147 p. $4.50.

The methods and materials described in this book are for use with young TMR, EMR, and educationally retarded, disadvantaged children. The school day should be organized around areas which need empahsis at a particular time, rather than by subject matter. Teachers can initiate the use of speech or further its development by using simple language, asking simple questions, and assuming that the child understands and will respond. Language training can include books and toys, coloring, singing, matching words, storytelling, and the study of mathematics. Methods which can be employed to teach the TMR child to communicate include participating-listening, the use of meaningful material, role-playing, structured lesson planning, active participation, and repetitious experience in the daily routine. TMR children should be taught the colors for enrichment and safety reasons. Basic handwork skills can include coloring and drawing, paper working, paper folding, pasting, brush painting, sponge painting, string painting, clay work, bead stringing, and sewing. The school curriculum should include physical education and music. Training in social living and self-help should be provided. This discussion of the problems of young TMR children and the lists of available teaching aids should be of interest to educators, special educators, and parents of TMRs. (No refs.) - *J.K. Wyatt.*

CONTENTS: The School Day; Language and Language Activities; Numbers and Mathematical Concepts; Colors; Handwork; Socialization; Physical Activity Including Games; Table Games and Other Quiet Activities; Self-Help; Music; Speech; Parents and Teachers.

1214 ALLEGHENY COUNTY SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC. *A Curriculum Guide for Teachers of Handicapped Preschoolers.* (Staff document.) Pittsburgh, Pennsylvania, 1969, 181 p. $5.00.

Physically handicapped and/or neurologically impaired children require highly structured preschool experiences aimed at the development of personal and social adjustment and a positive attitude toward abilities and disabilities. A sequencing of developmental and academic skills, special techniques, and special activities based on the continuing stages of growth and development can be used to train MRs. Important areas which should be considered are emotional, physical, language, and intellectual. The curriculum should provide for the development of the academic skills of perception, manual arts, language, and numbers. Good management requires that materials be appealing, well-organized, and well-structured, and that there be good rapport between the teacher and student. Activities for holidays such as Columbus Day, Halloween, Valentine's Day, Christmas, and Hanukkah, and other special occasions are included. The jobs of community helpers such as the postman, policeman, and storekeeper are described. Special activities include trips to the zoo, a circus, and a farm. This guide should be of interest to special educators, preschool teachers, and recreation personnel. (78-item bibliog.) - *V.G. Votano.*

CONTENTS: Areas of Development; Procedural Guidelines; Program and Classroom Management; Curriculum; Special Techniques; Poetry—Month by Month; Competencies Required of Teachers; Volunteers; Parent-Teacher Conferences; Daily Schedule.

1215 DI LORENZO, LOUIS T., & SALTER, RUTH. An evaluative study of prekindergarten programs for educationally disadvantaged children: Followup and replication. *Exceptional Children*, 35(2):111-119, 1968.

The effects of prekindergarten experience on 2 successive groups of 1,235 disadvantaged children were studied. The goals of the program were: to increase learning capacity and achieve greater language development; to develop better self-concepts; to aid motor development; and to develop more positive attitudes toward school. Pretreatment and post-treatment scores on the Stanford-Binet, Peabody Picture Vocabulary Test, and Illinois Test of Psycholinguistic Abilities indicated significant gains for Ss enrolled in the prekindergarten. The greatest gains were made by Ss in the programs with the most specific and structured cognitive activities. Although both white and non-white experimental Ss made greater gains than controls, white experimental Ss made greater progress. In terms of the Metropolitan Readiness Test, the differences between the total sample of experimental and control Ss at the end of the prekindergarten period did not change after a year of kindergarten. Kindergarten apparently maintained, but did not build on, prekindergarten benefits. Separate analysis of the 2

groups indicated that, at the end of kindergarten, white and female Ss in one group had maintained their advantage at the end of prekindergarten, but that non-white and male Ss had not. (2 refs.) - *J.M. Gardner.*

Research Training Program
New York State Education Department
Albany, New York 12200

1216 BELL, BESS. Nursery education and the child with special needs. *Canada's Mental Health*, 16(6):3-10, 1968.

Nursery education was discussed in terms of 7 categories of children with special needs in Canada; these include: children of the poor; MR children; the emotionally disturbed; children with learning disabilities; the physically handicapped; motherless children; and children with sensory loss or damage. Ninety percent of the MR can remain in the community. A case history of preschool training for a mongoloid girl showed that normal children can participate in teaching social skills to MRs. Preschool experiences for the emotionally disturbed were also described in a brief case report. This overview of general problems in preschool training for children with special needs focuses on the need for improved services. (8 refs.) - *B.Bradley.*

York State Department
of Mental Hygiene
Albany, New York 12200

1217 SENN, MILTON J.E. Early childhood education: For what goals? *Children*, 16(1):8-13, 1969.

The goals of contemporary education mistakenly seem to be focused on the increase of testable knowledge rather than on the development of the capacity for critical, creative, and contemplative learning. Research has shown that newborn babies profit from early stimulation of the central nervous system and that sensory deprivation can cause irreversible damage to later emotional and intellectual development. Timing or "critical periods" and the proper amount and quality of stimulation are equally important aspects of optimal development. Techniques such as the use of rote learning with Headstart children and teaching the use of toys to very young babies may increase IQ levels, but may do so at the risk of loss of curiosity, connection-making, and human relationships and are, therefore, of questionable worth. Creativity and individuality are more important than specific skills in the development of a "whole child." Feelings and emotions, interpersonal warmth, and the individual child's cultural heritage must not be forgotten in the quest for speedy learning. (10 refs.) - *E.L. Rowan.*

Yale University
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1218 WIENER, GERALD. Scholastic achievement at age 12-13 of prematurely born infants. *Journal of Special Education*, 2(3):237-250, 1968.

This longitudinal study presents an evaluation of the scholastic achievement of prematurely born children as compared to that of full-term children at 12-13 years of age. Ss in earlier studies were 500 singly born premature infants from a range of socioeconomic groups whose birth-weight was 2,500 gm or less and 492 full-term controls. Ss for this study were 419 premature and 429 full-term children who were between 12 and 13 years of age. They represented 85% of the Ss in the original studies. Data were obtained from the most recent reading, arithmetic, and intelligence tests administered by the schools. Results indicated that the premature children were impaired in reading and arithmetic as well as in grade placement. Reading impairment was less pronounced than arithmetic impairment. Since Negroes, lower socioeconomic group individuals, and individuals with inadequate medical care have a higher rate of premature births, the consequences of prematurity and perinatal pathology may partially explain the significant number of academic failures observed in these groups. (7 refs.) - *V.G. Votano.*

Johns Hopkins School of Hygiene
and Public Health
Baltimore, Maryland 21205

1219 LANGLOIS, MARY JACINTA. A comparative study of academic achievement made by children within the IQ range of 60-90 in regular classrooms in multi-graded schools versus those in single-graded schools in the Dodge City, Kansas diocese. *Research Abstracts: The Cardinal Stritch College*, Issue 9:63-65, 1968.

Academic achievement in mildly retarded and borderline intelligence fifth to eighth grade students in Catholic schools was examined to determine the effects of enrollment in multi-graded (N = 41) or single-graded (N = 31) schools. The California Mental Maturity Scale, the Scholastic Achievement Test, and the Scholastic Diagnostic Reading Test were used to measure mean gains in English, spelling, arithmetic, religion, and reading. No significant differences were found between the 2 groups for any of the areas over a 2-year period. (No refs.) - *J.M. Gardner.*

No address

1220 DULNYEV, G.M. A psychological-pedagogical study of the mentally retarded child as a basis for correction of his developmental deficiencies. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 747-749.

Any psychological-pedagogical study of the retarded child, undertaken to plan general educational and manual training processes more effectively, should combine a functional analysis of conditions and changes occurring in the course of education and an integrated study of the formation of attitudes toward activities,

others, and self. The basic method used is extensive observation of activity in typical situations. Special studies with individual pupils may be arranged to obtain more definitive data. Concrete methodological techniques can be delineated by studying the relationship of the emotional-affective and intellectual spheres and changes in attitude after education. Studies of special school pupils should continue for at least 2 years after graduation. (3 refs.) - *M.G. Conant.*

1221 BRADLEY, BETTY HUNT. Milieu teaching in special education. *Education and Training of the Mentally Retarded*, 3(4):194-199, 1968.

Milieu teaching involves the use of the total classroom situation and environment and has been effective in promoting learning and behavior for institutionalized MR children. Project 50 at the Columbus State Institute (Ohio) used milieu teaching to teach curriculum skills to 180 MRs (MA 2 to 7 yrs; IQ 20 to 65; CA below 16 yrs) in day care centers and wards by using each child's skills to attack his weaknesses. A group of 5 boys, who had severe expressive language problems, resisted direct help with their problems, and evidenced withdrawn behavior, were taught in a program which used rewards in association with language. Primary visual-motor and visual-material rewards were individually determined. Institutionalized MRs have experienced so much major failure that their assets have been hidden or lost; they need encouragement to try anything. Teaching should be based on an evaluation of abilities and liabilities as well as on an analysis of the factors involved in the skill to be taught. Teaching should take place in a small flexible class, and the structure of the class should be comfortable for the teacher. Children who are hyperactive verbally should be in classes with quiet MRs. The teacher's voice and mannerisms can be used to demonstrate desired conduct for students. Classroom furniture should be stable and comfortable, and the environment should control extraneous confusion, yet permit some physical activity. (8 refs.) - *M. Plessinger.*

Columbus State Institute
1601 West Broad Street
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1222 ALLEY, GORDON ROBERT. The effects of systematic sensory motor training on sensory motor, visual perception and concept formation performance of mentally retarded children. *Dissertation Abstracts*, 28A(8):2911, 1968.

No significant differences in sensory-motor, visual-perception, or concept-formation performance were found between an experimental group of 28 EMR Ss who participated in a systematic sensory-motor training program for approximately 30 minutes a day for a 2-month period and a control group of 28 EMR Ss who spent the concurrent time in regular special education activities. Measures of performance were the Lincoln-Oseretsky Motor Development Scale, the Purdue Perceptual Motor Survey, the Frostig Developmental Test of Visual Perception, the Kuhlmann-Finch Intelligence Tests (Test 1), the Revised Benton Visual Retention Test, and the Illinois Test of Psycholinguistic Abilities which were administered before and after training. (No refs.) - *J. King.*

No address

1223 KROP, HARRY D., & SMITH, CORINNE ROTH. Effects of special education on Bender-Gestalt performance of the mentally retarded. *American Journal of Mental Deficiency*, 73(5):693-699, 1969.

The purpose of this investigation was to study the effects of special education on perceptual-motor performance of the MR. Fifty-eight institutionalized females, divided into a control group and a school group, were administered the Bender-Gestalt on 3 different occasions. Between the second and third testing sessions, 1/2 of the school Ss were given special instructions on the drawing of geometric designs. The results indicate that Bender-Gestalt performance of MR residents improves significantly with participation in an educational program and that even further improvement in perceptual-motor skills results from a period of special instruction on the drawing of geometric designs. (19 refs.) - *Journal abstract.*

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1224 GROSSMANN, GUNTHER, & SCHMITZ, WILLI. Zur Problematik der Einheit von Behandlung, Bildung und Erziehung verhaltensgestorter und hirngeschadigter Kinder (On the problem of coordinating treatment and education of brain damaged children with behavior disturbances). *Heilpadagogische Forschung*, 1(3):408-424, 1968.

Close interaction of therapy and didactics provides a better basis for the successful education of the MR child with behavior disturbances than simple drug therapy. This type of education should not be undertaken within the framework of a school for the MR, but rather in a psychiatric hospital with a special program for the MR. In this setting, the teacher and psychiatrist can be in constant contact, and the feedback of information between them can be used for therapy, education, and training. One common mistake is to use educational procedures which are normally used with MRs for these children. This is not possible because of the added factor of behavior disturbance. Although much work may be done in groups, such as training in social behavior, each child should also have an individualized plan of treatment and education. Once the behavior disturbance has been minimized, it may be possible to transfer the child to a school for the MR. (27 refs.) - *S.L. Hamersley.*

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1225 MATHAMS, ANNE M. Teaching two at Westerlea. *Special Education*, 57(4):12-16, 1968.

The program of education, therapy, and recreation at the Westerlea School for Spastic Children aims primarily at developing self-expression and communication. Although individual attention and close work with one teacher are essential, group lessons and work with other staff members greatly benefit the cerebral palsied child. Spelling, reading, and arithmetic are taught by using the Pathway Picture Scheme, Happy Venture readers, phonetics, communication boards, an electric alphabet indicator, and number cards. A day pupil (13-yr-old boy) was taught to communicate by using eye movements and a head piece with a pointer attached. A 10-year-old resident female child, who was able to use one hand, learned to communicate by hand movements, a keyboard number indicator, blocks, and the Taylor spelling board. (No refs.) - *C. Rowan.*

Westerlea School for Spastic Children
Edinburgh, Scotland

1226 BLAIR, FRANCIS X. Where are we going in learning disabilities? *Special Education in Canada*, 43(2):15-21, 1969.

Learning disabilities are usually due to physiological conditions which affect normal learning and can occur in children with brain injury and primary handicaps, such as hearing problems. Estimates of the number of children with learning disabilities run from 3% to as high as 20% of the school population. The training of special teachers for these children in 1968-1969 will be carried on at 20 universities; however, the number of personnel in training is far less than needed. Training for the majority of children with learning disabilities should center around the regular classroom curriculum, with the services of resource teachers available as needed. The regular classroom teacher needs to be more involved in the learning disability program, and programs within an educational system need a greater degree of coordination. Many learning problems could be overcome if school entrance were gauged by readiness to learn instead of by birth date. (2 refs.) - *V.G. Votano.*

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1227 GORDON, SOL. The "brain-injured" high school student. *Academic Therapy Quarterly*, 4(2):87-91, 1969.

The brain-injured child tends to have a stormy school career and is often inappropriately classified as MR because of learning disabilities, difficulties in relating to his environment, hyperactivity, difficulties in making friends, and shortened attention span. As an adolescent, he is poorly coordinated physically and has poor control of fine muscle movement; however, he often has a good command of gross muscle movements. A team approach to diagnosis is important for education. Teaching methods which emphasize experience, guidance, direction, and touch are more successful than a "watch-me-do-it" method. Many brain-injured children can complete high school or earn a certificate of completion and find employment in a wide variety of jobs. The self-image of the individual is a more important factor in job success than the extent of brain damage. (5 refs.) - *V.G. Votano.*

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1228 MESHORER, E. A new strategy for teaching institutionalized retardates. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 764-765.

The Symbol Accentuation technique for teaching retardates to read was applied to 1,200 trainees (IQ range 25-45) who previously had been unable to learn to read. Almost 100 of these Ss are participating successfully in a laboratory or school program. This approach uses animated motion picture techniques to teach individuals with quite limited symbolic capacity to read. (No refs.) - *M.G. Conant.*

1229 MARKO, KATHLEEN B. Symbol accentuation: Application to classroom instruction of retardates. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 773-775.

Classroom instruction of retardates in the Symbol Accentuation method of reading involves the establishment of an object-related body activity coordinated with the accentuated word, the presentation of flash cards with words in accentuated and conventional forms, and the presentation of words in conventional form in sentence combinations. Of 70 SMRs (mean CA 21 yrs; mean MA 4 yrs 8 mos; mean IQ 38) trained in this method for 3-18 months, all can sight read 10-50 words, and 20 can sound out new words—an ability developed by applying similar procedures. (No refs.) - *M. G. Conant.*

1230 MILLER, EILEEN E. Symbol Accentuation: Application to special language problems. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 776-778.

Symbol Accentuation techniques were adapted to the needs of 3 aphasic people with spoken and written language deficits: an 83-year-old man with object-naming and articulation difficulty; a 51-year-old woman with inability to express meanings *via* spoken language and an inability to read; and a 63-year-old man who could read but was unable to express himself. Positive changes in all 3 patients were noted after

relatively few training sessions. Aphasics learn more rapidly than MRs because they already understand the function of words, they can quickly grasp the way body actions relate to word meanings, and they can attend for longer, more intensive work sessions (2 hrs) than MRs (40-50 min). (3 refs.) - *M.G. Conant.*

1231 BRUININKS, ROBERT H. Relationship of auditory and visual perceptual strengths to methods of teaching word recognition among disadvantaged Negro boys. In: *IMRID Behavioral Science Monograph Number 12*, Nashville, Tennessee, Institute on Mental Retardation and Intellectual Development, 1968, 170 p.

Second and third grade disadvantaged Negro boys (Stanford-Binet IQ range 70-110; mean CA 8 yrs 7 mos) learned to recognize unknown words equally well under teaching methods matched to perceptual strengths or weaknesses. The 105 Ss were divided into 2 perceptual dominance groups based on performance on perceptual tests. Ss in one group had demonstrated weaknesses in auditory perception and strengths in visual perception, while Ss in the other group had auditory perception strengths and visual perception weaknesses. Teaching procedures from the Mills Learning Methods Tests were used to attempt to teach each S to recognize 15 unknown words by a phonic approach and 15 unknown words by a "look and say" method. Analysis of immediate and one-week delayed recall scores based on number of words correctly remembered revealed a trend toward higher performance under the visual method of teaching, regardless of perceptual characteristics. These findings indicate that the practice of identifying children with special perceptual problems and employing tailor-made educational methods in their instruction may lack diagnostic validity and possess minimal educational value. (82 refs.) - *J.K. Wyatt.*

1232 MULLER, M.E. Teaching reading to the brain injured child. *Clearing House Journal*, Issue 9:29-41, 1968.

Teaching reading to brain-injured children is difficult because of their perceptual and behavioral problems; however, these can be overcome if the program utilizes a distraction-free classroom, reading readiness, and phonics. Typical perceptual difficulties are: the confusion of similar letters and similar words; inaccurate organization; and letter reversals. Visual and auditory discrimination exercises can be used to develop readiness. Classroom distractibility can be overcome by color separation, sentence isolation, and stimuli reduction. Suggested pupil activities include the use of charts, cards, scrap books, picture wheels, and comprehension tests. (3 refs.) - *V.G. Votano.*

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1233 MOSELEY, D.V. Diagnosis and panacea? An appraisal of some diagnostic tests for backward readers. *Remedial Education*, 2(3):101-108, 1967.

Diagnostic testing of backward readers should assess basic reading skills singly and in combination; remedial placement decisions should be made by age 7 or 8. Schools can handle some problems, but the most severely handicapped should be taught individually or in very small groups at a specially-equipped center. The center should have every modern pre-reading and remedial reading aid. Monroe's test for auditory discrimination and the Bender Visual-Motor Gestalt test have predicted early reading progress better than Stanford-Binet IQs. Low scores on Wechsler Intelligence Scale for Children subtests of immediate memory span sequencing are characteristic of both backward readers and brain-injured children. On Wedell's Light-Tracing Test, backward readers had poor organization of correctly perceived stimuli, and good and poor readers alike were apt to evidence mirror imaging. Inability to perceive rotated or spatially transformed figures also can be a diagnostic sign of brain damage, and visual-motor tests can identify the clumsy or slow child who should be referred for full neurological and psychological treatment. Eye dominance tests do not seem to predict backward readers. If a child cannot blend at least 4 vowel and consonant sounds reliably, he should not be taught by the conventional method. Severely retarded readers have been helped with a color coding system. Careful diagnosis and remedial planning can develop a child's confidence in his ability to perform the tasks required of him. (44 refs.) - *S. Markworth.*

London University
London, England

1234 DUNN, LLOYD M., NEVILLE, DONALD, PFOST, PHILIP, POCHANART, PRAYOT, & BRUININKS, ROBERT H. The effectiveness of three reading approaches and an oral language stimulation program with disadvantaged children in the primary grades: A final report after two years of the Cooperative Reading Project. In: *IMRID Behavioral Science Monograph Number 10*, Nashville, Tennessee, Institute on Mental Retardation and Intellectual Development, 1968, 157 p.

The Cooperative Reading Project, a 2-year intervention program for disadvantaged children, utilized 3 experimental reading treatments—the initial teaching alphabet (i.t.a.), the Words-in-Color (WIC) Program, and a Supplemented Conventional Reading Program (SCRP)—and an oral language stimulation program—The Peabody Language Development Kits 1 and 2 (PLDK). The Project attempted to keep teacher incentive and support comparable. Ss were a selected sample of 473 experimental and 65 control children (mean CA 73.64 mos; mean IQ 86.70) whose families fell at the lower end of the socioeconomic scale. The Metropolitan Achievement Test (MAT), the Illinois Test of Psycholinguistic Abilities (ITPA), the Peabody Language Production Inventory (PLPI), and the Stanford-Binet Intelligence Scale (S-B) were used to evaluate program effects. There were no significant differences in IQ between PLDK and non-PLDK Ss or between reading method groups. Ss in the WIC and

SCRP groups made significantly greater gains in MA than Ss in the i.t.a. group. Language achievement gains on the ITPA were significantly greater for SCRP Ss than for i.t.a. or WIC Ss. There were no significant overall differences between PLDK and non-PLDK Ss on the ITPA. Ss who had 1 or 2 years of PLDK had significantly higher PLPI scores than either control or non-PLDK Ss. PLPI scores of 1-year PLDK Ss were significatnly higher than those of 2-year PLDK Ss. SCRP Ss had significantly higher MAT scores than either i.t.a. or WIC Ss. Non-PLDK Ss were superior to 1-year PLDK Ss on the MAT but did not differ significantly from 2-year PLDK Ss. These findings support the inclusion of systematic phonic instruction in traditional orthography for disadvantaged children. (110 refs.) - *J.K. Wyatt.*

1235 DUNN, LLOYD M., & BRUININKS, ROBERT H. The effectiveness of three reading approaches and an oral language stimulation program with disadvantaged children in the primary grades: A follow-up report after the third grade. *IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports*, 5(13):1-100, 1968.

A follow-up study of Ss who had experienced 3 experimental beginning reading treatments and differing amounts of oral language stimulation during their first 2 years in school examined discernible differences among the various treatment groups at the completion of their third year in school. The 306 experimental and 48 control Ss (mean CA 73.92 mos, mean IQ 86.87) were from disadvantaged backgrounds. Experimental reading treatments employed were the initial teaching alphabet, the Words-in-Color program, and a Supplemented Conventional Reading Program. The oral language stimulation program used Level 1 of the Peabody Language Development Kits (PLDK) in 2/3 of the classrooms during the first year of the program. One-half of the PLDK 1 classes received PLDK 2 during the second year. PLDK exercises did not have a differential effect on Stanford Binet (S-B) scores, the Language Achievement scores of the Illinois Test of Psycholinguistic Abilities, or Myklebust's Written Picture Story Language Test scores. In general, follow-up S-B scores had returned to their initial pre-experiment levels. Scores on the Torrance Tests of Creative Thinking and the Oral Picture Story Language Tests were improved by PLDK exercises. Future research to investigate the differential effectiveness of methods of teaching beginning reading and/or oral language should control for differences in teacher effectiveness. (22 refs.) - *J.K. Wyatt.*

1236 CALIFORNIA. MENTAL HYGIENE DEPARTMENT. *A Language Stimulation and Reading Program for Severely Retarded Mongoloid Children: A Descriptive Report.* Rhodes, Leanne, Gooch, Bill, Siegelman, Ellen Y., Behrns, Charlene, & Metzger, Reva. (California Mental Health Research Monograph No. 11), 1969, Sacramento, Califomia, 102 p.

Ten, institutionalized SMR mongoloid children who communicated through bodily gestures and inarticulate sounds participated in a language training program for 2 1/2 years which focused on building receptive and expressive language through a day and evening program of intensive stimulation. Nine Ss (mean IQ 31) developed relatively small but very usable expressive vocabularies and the ability to understand a number of basic number concepts and to read and enjoy simple books. One S (consistent IQ 14) remained essentially mute. The program provided intensive environmental stimulation, language stimulation, articulation training and correction, reading training, and group and individual instruction. Emphases were on concept-orientation, immediacy and relevance of text materials, built-in feedback and reinforcement, and a sequenced approach. Eight Ss evidenced significant improvement in articulation ($p < .001$) and a decrease in articulation errors. Group means for 9 Ss for the number of different words used during testing sessions after 6 and 24 months of program participation were 82 and 209, respectively, while those for percentages of word combinations were 16 and 57, respectively. Successive IQ measures for these 9 Ss revealed a tendency toward significant increase in intellectual ability ($p < .005$, t 4.39). This program did not require an increase in the 1:5 staff patient ratio but did require a change in the deployment of staff time. (18 refs.) - *J.K. Wyatt.*

1237 DUNN, LLOYD M., POCHANART, PRAYOT, PFOST, PHILIP, & BRUININKS, ROBERT H. The effectiveness of the Peabody Language Development Kits and the Initial Teaching Alphabet with disadvantaged children in the primary grades: A report after the third grade of the Cooperative Language Development Project. In: *IMRID Behavioral Science Monograph Number 9*, Nashville, Tennessee, Institute on Mental Retardation and Intellectual Development, 1968, 163 p.

An analysis of a 3-year educational intervention program revealed that an experimental treatment method which used the initial teaching alphabet (i.t.a.) and the Peabody Language Development Kits (PLDK) approaches in combination appeared to be the most effective for improving the school achievement, language abilities, intellectual functioning, and creative thinking of disadvantaged primary-grade children. The 196 Ss were culturally deprived or socially disadvantaged children (mean CA 75.93 mos, mean SB IQ 86.11) who attended 8 public schools in Nashville (Tennessee). Experimental groups were exposed to educational intervention treatments based on i.t.a. and/or PLDK and taught either by the regular teacher or by team-teaching methods for periods of 1, 2, or 3 years. Control groups were taught to read in traditional orthography. The use of ITA alone resulted in superior academic achievement, and duration of PLDK experience was related to superior achievement on tests of creativity and oral language. Instruction by regular classroom teachers appeared to be as effective as a team teaching approach. These findings suggest that the i.t.a. and PLDK programs have a potential use in the enhancement of the behavioral development of disadvantaged children. (40 refs.) - *J.K. Wyatt.*

1238 DUNN, LLOYD M., & BRUININKS, ROBERT H. Efficacy of the Peabody Language Development Kits and the Initial Teaching Alphabet with southern disadvantaged children in the primary grades: A follow-up report after the fourth grade. *IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports*, 5(14):1-89, 1968.

Two programs for teaching language development to southern disadvantaged children were analyzed for the first 3 grades of school and in a one-year follow-up evaluation to determine long-term gains. The Peabody Language Development Kits (PLDK) Levels 1, 2, and 3 (experimental versions) and an experimental reading program which employed the initial teaching alphabet (i.t.a.) program and the *Basic Reading* series of McCracken and Walcutt were used. The control group used the Houghton Mifflin reading program and did not receive oral language stimulation. Variances in the teaching of the PLDK lessons by different instructional personnel were also measured. Eight of 21 groups in earlier studies were selected for follow-up evaluation. Tests included the Stanford-Binet Intelligence Scale (S-B), Peabody Picture Vocabulary Test, Torrance Tests of Creative Thinking, Metropolitan Achievement Test, Myklebust Picture Story Language Test, and Oral Picture Story Language Test. Results on 186 Ss showed that the PLDK lessons significantly improved S-B IQ scores at the end of the third year and that these gains were retained at the end of the fourth grade. The i.t.a. group with 2 or 3 years of PLDK lost in IQ points from post to follow-up evaluations. The experimental group evidenced a lead in creative thinking after 3 years which disappeared at follow-up. Data indicated that PLDK lessons and the i.t.a. reading approach were effective with this population in spite of some follow-up losses. However, difficulties in the experimental design of teaching methods restrict the utility of this data. (22 refs.) - *B. Bradley.*

1239 DUNN, LLOYD, POCHANART, PRAYOT, & PFOST, PHILIP. *The Efficacy of the Initial Teaching Alphabet and the Peabody Language Development Kit with Disadvantaged Children in the Primary Grades: An Interim Report after Two years. IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports*, 4(7):1-24, 1967.

Analysis of a 2-year program in which the initial teaching alphabet (i.t.a.) was used to teach beginning reading, and the Peabody Language Development Kits (PLDK) 1, 2, and 3 were used to stimulate oral language and verbal intelligence in underprivileged children indicates that the reading achievement of children using i.t.a. was significantly advanced over that of children in a conventional reading program and that the greatest reading progress was made by children who received both i.t.a. and PLDK instruction. Children who began to read in i.t.a. were as effective spellers in traditional orthography as children who began to read in a conventional reading program. Ss were 200 underprivileged boys and girls (mean CA 75.45 mos; mean IQ 84.86; mean MA 64.96; and mean language age 62.06) who entered first grade in the fall of 1964. Family data indicated that 9% of the families were on welfare and that the mean educational level of the best-educated parent was 10.3 years. Housing conditions were rated as extremely poor for 19%, poor for 36%, and fair for 45%. Six different procedures for teaching the i.t.a., PLDK, and conventional reading programs were used by regular classroom teachers in self-contained classes. Illinois Test of Psycholinguistic Abilities and Peabody Language Production Inventory results revealed that the PLDK had a beneficial effect on language growth, that there was a positive and direct relationship between length of PLDK experience and amount of growth, and that there were significant increases in the MAs (but not IQs) of Ss who received 2 years of PLDK treatment. (8 refs.) - *J.K. Wyatt.*

1240 BLANCHARD, IRENE, & BEARD, CELESTE. A program in basic communication development for retarded blind children. *Journal of Special Education*, 2(3):337-340, 1968.

An 8-week communication stimulation program for 20 PMR (CA 10-19; IQ 6-22) adolescent blind children who could not communicate verbally was carried out by college students under the direction of speech consultants. Stimulation of motor activities, particularly touch, was emphasized. Objects and sounds were associated, beginning with the long "o." Work in the area of self-help skills and in responding appropriately to simple verbal commands was also included. The chief problems presented by the Ss were lack of exercise of the senses of taste, touch, balance, and muscle position and delay in responding. Although none of the Ss learned to talk, improvement was noted in responsiveness to sound and movement and in associations with other children. (No refs.) - *J.M. Gardner.*

Pacific State Hospital
Pomona, California 91766

1241 GUESS, DOUG, SAILOR, WAYNE, RUTHERFORD, GORIN, & BAER, DONALD M. An experimental analysis of linguistic development: The productive use of the plural morpheme. *Journal of Applied Behavior Analysis*, 1(4):297-306, 1968.

The ability to use singular or plural nouns properly was taught to a 10-year-old SMR institutionalized girl. Prior to the study her vocabulary was limited to a small number of words and short phrases, and she did not demonstrate knowledge of plurals. Reinforcement (food) was made contingent upon using the proper form (singular or plural) for single or pairs of objects which were randomly presented. Incorrect responses were corrected. Stage 1 consisted of teaching the singular object name; in stage 2 the plural was taught; and stage 3 was the criterion test. Criterion performance for each stage was defined as 3 consecutive correct responses. Correct usage of plurals resulted. A reversal of contingencies (rewarding plural responses to singular objects and vice versa) resulted in a corresponding change in performance, which was then returned to proper usage by introducing the previous contingencies. Errors in using plurals were more likely for words ending in vowels than for words ending in consonants. Generalization of plural usage occurred for objects presented in threes and for words previously trained in the reversal condition. (17 refs.) - *J.M. Gardner.*

Kansas Neurological Institute
Topeka, Kansas 66614

1242 KARNES, MERLE B., HODGINS, AUDREY S., STONEBURNER, ROBERT L., STUDLEY, WILLIAM M., TESKA, JAMES A. Effects of a highly structured program of language development on intellectual functioning and psycholinguistic development of culturally disadvantaged three-year-olds. *Journal of Special Education*, 2(4):405-412, 1968.

The effects of educational intervention on the intellectual and psycholinguistic development of 2 groups of culturally and economically depressed children (CA range 2 yrs 10 mos to 3 yrs 8 mos) were investigated. The groups were comparable in terms of Negro and Caucasian races. The control group (14 Ss; mean IQ 91.3) remained at home and had no special treatment during the 10-month study. The experimental group (15 Ss; mean IQ 94.5) was bused to school daily, and Ss were initially assigned to 3 groups based on IQ with one teacher for each group. These groups were very flexible, and extra supervision or instruction was given when needed. Subject matter was mostly in game format. Goals were to teach vocabulary, basic number concepts, manipulative skills, the naming and identifying of objects, to establish descriptive properties and logical relationships, and to foster reading readiness. Testing at the end of the experiment revealed that the experimental group had gained 16.9 IQ points (mean 111.4) and the control group had lost 2.8 points (mean 88.5). The experimental group had grown 18 months in MA, while the control group had grown only 9 months. The language level of the experimental group had progressed from below age expectancy to 2 months above, while the control group deficit had increased to 8 months below age expectancy. Subsequent evaluation is needed to see if these gains can be sustained and translated into later academic achievement. (6 refs.) - *B. Parker.*

University of Illinois
Chicago, Illinois 60680

1243 BONAR, GEORGE. Industrial arts for the slow learner. *Industrial Arts and Vocational Education*, 57(9):58, 1968.

A special curriculum which concentrates on employment preparation is necessary in industrial arts classes for MRs (IQ 50-79); MR students with a special interest or aptitude should be encouraged to take advanced courses. The most difficult problem is the short interest span of MRs; however, this may be increased by using audio-visual equipment, field trips, and special teaching techniques. These techniques should include simplicity and clarity in planning and activities, the omission of undue pressure, provision of encouragement, and individual attention. Socio-drama and individual and small group research could be used to develop various activities aimed at maintaining student interest. (4 refs.) - *V.R. Shaffer.*

Salem Junior High School
Salem
Ohio 44460

1244 KUNKEL, NANCY D. Nutrition education. *Pointer*, 12(3):27-28, 1968.

Self-care programs for MRs should encourage diets which are convenient, varied, and nutritionally adequate. Four major groups—milk, meat, vegetables and fruits, and bread and cereal—are specified, and recommended portions for specific age groups are listed. Nutrition education should be included as an essential part of academic studies for MRs. (No refs.) - *V. R. Shaffer.*

Bureau of Mental Retardation Services
California State Department of Public Health
Sacramento, California

1245 ALKEMA, CHESTER JAY. Art and the exceptional child. Part I. *Children's House*, 2(6):6-10, 1968.

Art fosters the child's mental development by providing opportunities for self-expression, experimentation, and the discovery of new ideas and by encouraging orderliness, memory and recall, and observation of the environment. The gifted child who brings imagination, sensitivity, and originality to his work presents special problems (such as, rapid discouragement, early boredom, a preference for working alone, and a need for competition) which must be met by the art teacher. The MR child who lacks motor coordination and is unable to express ideas requires strong motivation by the therapist and instruction in the appreciation of color, light, and space concepts. (No refs.) - *C. Rowan.*

Grand Valley State College
Allendale, Michigan 49401

1246 ALKEMA, CHESTER JAY. Art and the exceptional child. Part II. *Children's House*, 3(1):12-15, 1968.

The proper use of art materials and teaching methods can aid perceptual development in MR children. Although demonstrations of new materials or new ways to use familiar materials are necessary to stimulate interest and provide security, repetition and involved demonstration stifle creativeness. A class excursion to develop ideas, accidental art to stimulate interest, and the use of a make-believe television set or puppets to encourage verbal expression are useful techniques. (24-item bibliog.) - *C. Rowan.*

Grand Valley State College
Allendale, Michigan

1247 ARMSTRONG, JENNY R. Mathematics curriculum for the mentally retarded. *Winnower*, 4(5):86-88, 1968.

Scope, sequence, balance, and general organization are basic curriculum characteristics which should be considered in the selection of mathematics materials for the MR. The scope should include geometry, set theory and number theory, and measurement as well as basic

arithmetic. The sequence should move from the concrete to the abstract. Teaching time should be balanced and include face value, cardinality, and number operations concepts. Spiral organizations around a central theme and the use of repetition and review should facilitate mathematical learning. (4 refs.) - *V.G. Votano.*

No address

1248 CARY, HENRY B. Junior high bingo game. *Pointer*, 12(3):33-34, 1968.

Mathematical accuracy, self-discipline, and responsibility are taught to EMRs who participate in a junior high bingo game. A different child acts as caller for each day, the players detect and correct errors in calling, and the winner's card is checked for accuracy. (No refs.) - *V.R. Shaffer.*

Shuksan Junior High School
Bellingham, Washington 98225

1249 CARY, HENRY B. Miniature golf course provides fun and learning. *Pointer*, 12(3):34-35, 1968.

EMRs helped to construct items used in a miniature golf project initiated to provide fun and training for the students and an opportunity for the teacher to evaluate a participant's mathematical ability, coordination, sportsmanship, personality traits, and frustration tolerance level. (No refs.) - *V. R. Shaffer.*

Shuksan Junior High School
Bellingham, Washington 98225

1250 BROWN, JOE. The effect of a physical education program on the muscular fitness of trainable retarded boys. *American Corrective Therapy Journal*, 22(3):80-81, 1968.

The effects of a physical education program on 30 TMR boys (CA 10-17 yrs; MA 2 yrs 1 mo-7 yrs 5 mos) without signs of neurological impairment were studied. The physical education program, which emphasized physical conditioning and individual and group activities, consisted of daily 25-minute sessions over a 6-week period. The Kraus-Weber (KW) Test of Minimal Muscular Fitness was employed as a pretest and post-test measure of muscular fitness. This test, which measures muscular fitness in the abdomen and back and the flexibility of the back and hamstring muscles, was graded on a pass-fail basis. Comparison of pretest and post-test performances indicated that Ss significantly (.01) improved in all 3 areas. (8 refs.) - *J.M. Gardner.*

University of Cincinnati
Cincinnati, Ohio 45221

1251 BODE, MARY JANE. You are my sunshine. *American Education*, 4(5):16-19, 1968.

Apparatus was built for a physical education program for 400 MRs in a state school (Texas). This functional playground equipment emphasizes the development of basic body movements and consists of swimming pools, ladders, rope-climbing equipment, ramps, bridges, and obstacle courses. Instructors are undergraduate and graduate students and one full-time employee. Physical activities have increased and improved group work, conversation, coordination, and body movements among the MR children. (No refs.) - *V.G. Votano.*

Long News Service
Austin, Texas 78700

1252 DI JENNO, RITA Fitness games for mentally retarded. *Instructor*, 78(10):35, 1969.

Physical growth and development are important for the retarded, and physical education programs can help them to develop self-pride as well as look and feel better. A well-rounded physical education program should provide opportunities for socialization, build coordination, and strengthen muscles. Various exercises and games are described. (2 refs.) - *J.M. Gardner.*

Elementary School
Royersford, Pennsylvania 19468

1253 Referral forms for adapted physical education. *Journal of Health, Physical Education, and Recreation*, 40(1):71-73, 1969.

A new referral form was developed to enable the physician, physical educator, school staff, and parents to work together in assembling the information needed to design an adapted physical education program to meet the individual needs of each student. The physician provides diagnostic and prognostic data, and information on general areas of restricted or corrective activities. Specific program selection is made by the physical educator. (No refs.) - *E.F. MacGregor.*

1254 COMMITTEE ON CHILDREN WITH HANDICAPS. The epileptic child and competitive school athletics. *Pediatrics*, 42(4):700-702, 1968.

The development of medications which can bring epilepsy under satisfactory control now enables most epileptic children to participate in all school physical activities which do not impose a significant risk of injury to themselves or others. The decision regarding athletic participation is the responsibility of the parent, physician, and school. Such a decision must be made on a highly individualized basis. Periodic review of the child's status by the physician and training of school authorities in emergency seizure procedures are recommended. In cases of uncertainty trial periods may be used. (No refs.) - *C. Rowan.*

1255 GEERS, P.A.M., & VAN VELZEN, W.J. Muziekonderricht aan zwakzinnigen (Musical instruction for the mentally retarded). *Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg*, 5(3):99-104, 1968.

MR children benefit in social and personality development when they are given personalized musical instruction which uses a simplified notation. Since conventional methods of teaching pitch and length of notes are often too complicated and distracting, 3 simple indicators were devised. Pitch variation was indicated vertically—the higher the symbol, the higher the pitch. Relative pitch was indicated by a light-to-dark scale—the lower the pitch, the darker the color. Length of note was indicated by a rectangle (eighth note), a square (quarter note), a short line (half note), and a long line (whole note). Colors of the notes were devised so that no 2 subsequent notes belonged to the same primary color. Musical instruments used in instruction included flutophones, xylophones, pianos, and electronic organs. Keyboard instruments had color indicators placed above the appropriate keys. Lessons were given individually twice a week for a period of 20 minutes, with subsequent group sessions. All children in this group, who were mostly emotionally disturbed EMRs and SMRs, showed marked progress in emotional and social development. (No refs.) - *S.L. Hamersley.*

Huize "Den Berg"
Goes, Holland

1256 WILLIAMS, CHARLES F., GILMORE, ALDEN S., & MALPASS, LESLIE F. Programmed instruction for culturally deprived slow-learning children. *Journal of Special Education*, 2(4):421-428, 1968.

The effectiveness of 2 different programed instruction (PI) forms of presentation and regular classroom procedures in teaching reading skills to slow learning culturally deprived children was compared. Fifteen Ss (CA 6 yrs 8 most to 10 yrs 2 mos; MA 4 yrs 7 mos to 8 yrs 1 mo) were randomly assigned to each group. All Ss were retarded at least 6 months in school achievement. The 3 groups worked either with a teaching machine (M), a programed instructional text (W), or the regular class procedure (C). Groups W and M did not differ in the content of the material, but did differ in format of presentation. No differences were found between M and W for number of words learned, paragraph reading, or scores on the Gates Primary Reading Test, while Group C was significantly inferior to groups W and M on all measures. Moreover, groups W and M retained over 90% of the words acquired during treatment on a 30-day post-treatment test. Individual Ss appeared to respond more favorably to the teaching machine format; however, teachers noted beneficial changes in interest and self-confidence for both PI groups. (16 refs.) - *J.M. Gardner.*

No address

1257 COX D. Learning to read with the aid of teaching machines. *Teaching and Training*, 6(2):43-51, 1968.

Teaching machines and programs (such as, the tape recorder, Language Master, Leedham Reading Scheme, Language Master Sentence Method, Language Master Phoneme Reading Scheme, ESA Tutor, and Canterbury Teaching Machine) were used to teach MR and Indian children to read. The use of these techniques and programs in combination with a permissive atmosphere, a great variety of reading materials, and a free classroom environment resulted in substantial reading progress by some students. Descriptions of specific equipment and programs and of the groups with whom they were used are included. (No refs.) - *J. King.*

Beaumont Leys School
Leicester, England

1258 DRISCOLL, JOHN. Educational films and the slow learner. *Mental Retardation/MR*, 6(1):32-33, 1968.

Story films were effectively used to teach behavior concepts and attitudes to MR students; however, length, color, animation, and humor did not produce specific effects. Several groups of junior and senior high school students (N=402; mean CA 13 yrs 3 mos—junior high Ss, 15 yrs 10 mos—senior high Ss; mean IQ 67—junior high Ss, 69—senior high Ss) were shown 3 films and then questioned to determine the effects of the films on their attitudes and factual and conceptual learning. The approach, format, recordings, editing, narration, repetition, and length of the films were designed especially for use with MRs. Factual learning was significant ($p < .001$), the results of attitudinal learning questions could not be tested for significance, and the results of concept learning questions ranged from adequate to good but could not be tested for significance. Attitudes appeared to be affected by a slow pace which used the Ss current vernacular and sparse narration; factual learning increased when a film was shown a second time. (No refs.) - *V.G. Votano.*

University of Washington
Seattle, Washington 98105

1259 TIMPANO, DORIS M. How to run an audio-visual program with low IQ students. *Digest of the Mentally Retarded*, 5(3):167-169, 172, 1969.

MRs (IQ 50-75) were trained to operate an audio-visual center in a public school. They learned how to operate, maintain, and store equipment, as well as to act as receptionist, take orders, and perform office procedures. The training included informing teachers about the use of equipment, selecting materials, previewing, and filling emergency orders. (No refs.) - *V.G. Votano.*

Richard S. Grossley Junior
High School
Jamaica
New York 11400

1260 BJOEDSTRUP, L. Instructional materials. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 688-690.

There is a need for communication between individuals preparing and using teaching materials for the MR. At the present time, the Materials Laboratory in Copenhagen (Denmark) is engaged in: various activities related to the collection, survey, analysis, testing, and production of teaching materials for the MR; dissemination of materials and information; and communication with similar establishments in other handicap areas. (No refs.) - *M.G. Conant.*

1261 ASERLIND, L. Instructional materials for the mentally retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 681-684.

Research in the area of instructional materials for the MR has identified characteristics which should be found singly or in combination in these materials. These features include color, simplicity, perceptual honesty, built-in opportunity for short incremental steps, possibilities for immediate reinforcement, appeal to more than one learning receptor system, sufficient identification of the steps in acquisition of learning, an element to give a sense of mastery, psychological elements appropriate for CA rather than MA, and consideration of the physical and neurological limitations of the user. Teacher acceptance and supervision are required or the materials will be useless. (No refs.) - *M.G. Conant.*

1262 WILLIAMS, P. Strategies in evaluating educational materials for the mentally retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 685-687.

In the panel method of evaluating educational materials for the MR, a panel of experts reviews the material according to a predetermined pattern. In the experimental method, different materials are tested under controlled conditions, and the results are evaluated. The use of this method with materials for retarded children presents problems because of the possibility that the learning variables in MRs may be different from those of normal children and because MRs have a slow rate of learning. In the psychometric method, the various attributes of the instructional material are correlated with progress and the most efficient predictors of success are determined. This method allows new material to be quickly evaluated so that its important attributes can be built into new materials. (6 refs.) - *M.G. Conant.*

TREATMENT AND TRAINING ASPECTS—PSYCHO-SOCIAL

1263 GARDNER, JAMES M. Behavior modification in mental retardation: A review of research and analysis of trends. Paper presented at the third annual meeting of the Association for the Advancement of the Behavior Therapies, Washington, D.C., September, 1969. 30 p. Mimeographed.

An analysis of trends in behavior modification research with the MR is made in terms of self-care and social skills. In recent years increasing attention has been paid to social skill training, particularly classroom training and language development. Clinical findings and research methodologies used in these studies are examined, and future areas of needed research are suggested. Behavior modification is still in its formative stages as a technique, and more study is needed on the efficacy and adaptability of this method of training MRs. (78 refs.) - *J.M. Gardner.*

1601 West Broad Street
Columbus, Ohio 43223

1264 VOGEL, WILLIAM, KUN, KAROLY J., & MESHORER, EDWARD. Changes in adaptive behavior in institutionalized retardates in response to environmental enrichment or deprivation. *Journal of Consulting and Clinical Psychology*, 32(1):76-82, 1968.

The differential effects of enrollment in an institutional school program on personal and social skills were examined in 94 MRs. Forty-eight school Ss were matched on age, sex, etiology, and IQ and MA upon institutionalization with 46 non-school Ss. A specially constructed 30-item behavior checklist which covered the areas of personal and social skills was employed. Each item was scored on a 5-point scale after institutional records had been examined. Individual Ss were not seen, and attendants familiar with them were not interviewed. Factor analysis revealed 2 major factors which were relatively independent. School Ss had initially higher levels of personal and social skills; however, personal but not social skills increased significantly after the 4-year school program. MA (with CA partialed out) and CA were significantly related to

post-treatment scores on personal skills for both groups, but not to scores on social skills. The school program appeared to be significant in the development of self-help skills but not in social skill functioning, and IQ provided an index of educability but not of affective, temperamental, and social behaviors. (5 refs.) - *J.M. Gardner.*

Research Institute of Life Sciences
Worcester State Hospital
Worcester, Massachusetts 01600

1265 ANANT, SANTOKH S. The use of operant conditioning with the mental retardates: A report of a pilot experiment. *Special Education in Canada*, 43(1):8-13, 1968.

Evaluation of the effects of an operant conditioning token training program on communication, self-help, and social skills for moderately MR residents after 7 weeks indicated progress for 18 of 19 Ss. The training program stressed positive reinforcement and avoided negative reinforcement except in the case of temper tantrums. Individual assessments of behavior competence were made, reinforcement heirarchies were established for each S, detailed notes of training sessions were kept, and behavior demonstrations were provided by the staff. (5 refs.) - *J.M. Gardner.*

Department of Psychology
University of Lethbridge
Lethbridge, Alberta, Canada

1266 CARLSON, RALPH M. Behavior modification: Educational implications. *Journal of Learning Disabilities*, 1(9):515-519, 1968.

Behavior modification is the application of scientific methodology to the learning, alteration, maintenance, or elimination of behavior. It can be an efficient and effective technique in the classroom, partly because it emphasizes environmental influences rather than etiology. To use behavioral techniques, it is necessary to identify relevant goal behaviors, to break down terminal behavior into its component parts, to outline the various sequential steps, and to reward successive approximations to the goal behavior. It is better to make sequential steps too small rather than too large, because it is important to provide success at each level. (11 refs.) - *J.M. Gardner.*

University of Oregon
School of Education
Eugene, Oregon 97403

1267 TIGHE, THOMAS J., & ELLIOTT, ROGERS. A technique for controlling behavior in natural life settings. *Journal of Applied Behavior Analysis*, 1(3):263-266, 1968.

Behavior modification can be used to establish desirable behaviors and/or eliminate undesirable behaviors. In the traditional psychotherapy situation, the therapist has little control over the patient's behavior in the natural environment. One possible remedy for this situation is to require the patient to give up a reinforcer (usually money) with the proviso that appropriate behavior in the natural environment can lead to re-earning the reinforcer. For example, in one study concerned with eliminating smoking behavior, Ss were made to pay $65 which they could then re-earn by abstaining from smoking. Such a procedure raises the problem of checking the veracity of the S's verbal report. Reports from cohorts in the environment, periodic checkups by the experimenter, and interviews could be used to verify report validity. In implementing this technique, it is important that the response-reinforcement relationship be irrevocable, that the program be extensive enough to maintain the desired behavior following treatment, and that the therapist be sure that the desired behavior is actually occurring during the treatment period. (6 refs.) - *J.M. Gardner.*

Department of Psychology
Dartmouth College
Hanover, New Hampshire 03755

1268 PETERSON, ROBERT F., & PETERSON, LINDA R. The use of positive reinforcement in the control of self-destructive behavior in a retarded boy. *Journal of Experimental Child Psychology*, 6(3):351-360, 1968.

Severe self-destructive behavior (SDB) was eliminated in an 8-year-old SMR boy by using a procedure which involved sessions in an experimental room in which positive reinforcement was used to control SDB. During the first experimental period (27, 15 min sessions) when food and praise were contingent on no SDB, responding fell to an average of 4 SDBs/minute. During the second experimental period, the S was instructed to walk across the room after each SDB. SDB responses decreased to zero over the next 20 sessions. A reversal instituted during session 64 made food and praise contingent on SDBs and walking contingent on no SDBs. Responding increased over 3 reversal periods and decreased when previous contingencies were reinstituted. SDBs were at a minimum when the S was in possession of a blanket, suggesting the possible secondary reinforcing value of the blanket. Crying was also related to the absence of the blanket, though not to the same extent as SDBs. (8 refs.) - *J.M. Gardner.*

University of Illinois
Chicago, Illinois 60680

1269 BIRNBRAUER, J.S. Generalization of punishment effects—A case study. *Journal of Applied Behavior Analysis*, 1(3):201-211, 1968.

Electric shock was used to eliminate the infrequent and unpredictable aggressive acts of a 14-year-old PMR boy over a 16-month period. Since low frequency behaviors are difficult to modify through the direct application of primary reinforcement, verbal commands were established as secondary reinforcers through association with a primary reinforcer (electric shock). In a controlled laboratory situation, the verbal stimuli "no" was effective in eliminating specific maladaptive responses (incorrect button pushing, picture tearing, balloon breaking) with a minimum presentation of shock. On the ward, "No" paired with time-out from

reinforcement was not effective in eliminating napkin tearing, nor was a warning from the experimenter who conducted the laboratory trials. However, administration of shock in the ward situation eliminated the behavior. Results indicate that while effective, the use of electric shock has limitations in that it can lead to specific discriminations between different responses under the same conditions, the same response under different conditions, and between experimenters. (21 refs.) - *J.M. Gardner.*

University of North Carolina
Chapel Hill, North Carolina 27514

1270 FRANKS, CYRIL M., SUSSKIND, DOROTHY J., & FRANKS, VIOLET. Behavior modification and the school psychologist. In: *Professional School Psychology, Volume 3.* New York, New York, Grune & Stratton, 1969, Chapter 17, p. 359-396.

School psychologists should be aware of new developments in the area of behavior modification and of their potential use in educational activities. Broad spectrum behavior modification refers to the application of a wide variety of behavioral techniques to human behavior. These techniques can involve environmental modification, peer group influences, and reward training. In the classroom, they can be used: to assist teachers with normal and problem children, particularly MR and autistic children; to teach self-help and social skills; and to eliminate undesirable behavior. Recent developments have included the use of the parent as the behavior engineer, a particularly useful practice in the treatment of school phobias. In the behavioral classroom, the teacher's task is to define target behaviors, maintain limits, and set up clearly defined systems of rewards and punishments. (58 refs.) - *J.M. Gardner.*

1271 STEINMAN, WARREN M. The strengthening of verbal approval in retardates by discrimination training. *Journal of Experimental Child Psychology,* 6(1):100-112, 1968.

In a 5-stage pretest-post-test experiment, the relative reinforcing strengths of a generalized material reinforcer and a pair of auditory social reinforcers were examined. Verbal reinforcers then served as discriminative stimuli for a new response reinforced on a decreasing percentage schedule. The strengths of the 2 types of reinforcement were then measured under the original contingencies immediately after discrimination training and several weeks later. Ss were 5 MR children (CA 10-14 yrs; IQ range 37-77) who preferred material reinforcers. Results indicated that the strength of a verbal reinforcer was reliably increased by the training program. (17 refs.) - *V.G. Votano.*

University of Illinois
Chicago, Illinois 60680

1272 PIPER, TERRENCE J., & MacKINNON, RONALD C. Operant conditioning of a profoundly retarded individual reinforced via a stomach fistula. *American Journal of Mental Deficiency,* 73(4): 627-630, 1969.

A tube-fed, 15-year-old PMR girl was conditioned to raise her arm in an operant conditioning paradigm. Only her evening meal, consisting of 8 ounces of fluid, delivered 1/2 ounce at a time, was used as a reinforcing stimulus. This was delivered directly into the stomach by means of a cannula through a fistula in the abdominal wall. The study supports generalizations, (made from Iller and Kassen's 1952 study which employed rats) which suggest that the presence of food in the stomach, in the absence of all oral stimulation, is a source of reinforcement, in addition, the study suggests the possibility of conditioning simple responses in the PMR. (2 refs.) - *Journal abstract.*

210 South Woodward Street
Tallahassee, Florida 32306

1273 SECHREST, LEE. Exercise as an operant response for retarded children. *Journal of Special Education,* 2(3):311-317, 1968.

Exercising on a stationary bicycle was reinforced on a fixed ratio schedule with edible, manipulatable, and visual stimuli in a class of 8 severe to moderately MR children (CA 10-19). Availability of reward was signaled by a light (SD-on), and rewards were not available when the light was off (SD-off). The Ss' responses were greater 13 of the 14 data-gathering days during SD-on periods then during the SD-off periods. Individual use in the home of a 13-year-old, poorly-coordinated mongoloid boy demonstrated similar results. Problems in the apparatus prevented more complete and exhaustive data collection, but the importance of reinforcement for physical exercise was clearly demonstrated (4 refs.) - *J.M. Gardner.*

Northwestern University
Evanston, Illinois 60201

1274 BROOKS, B. DAVID, MORROW, J.E., & GRAY, WILLIAM F. Reduction of autistic gaze aversion by reinforcement of visual attention responses. *Journal of Special Education,* 2(3):307-309, 1968.

Gaze aversion (looking away) was eliminated in a 19-year-old deaf institutionalized girl diagnosed as autistic by reinforcing (with candy) all eye contacts. High rates of eye contact were maintained on a variable ratio schedule on which approximately every 20 responses were rewarded. During extinction, eye contact fell to baseline levels (near zero), thus demonstrating the importance of reward conditions. When reinforcement was reinstituted, the former high rate of responding resumed. (3 refs.) - *J.M. Gardner.*

California State College
Fullerton
California 92631

1275 SAMS, MONA. Reaching an autistic child. *Staff*, 5(5):20-21, 1968.

A 12-year-old autistic boy was taught writing skills over a 13-month period by an occupational therapist who worked 5 hours a day with him. Consistent companionship and an accepting attitude were important therapeutic tools. (No refs.) - *J.M. Gardner.*

Psychological Associates
Kalamazoo, Michigan 49001

1276 LOVAAS, I. Childhood autism. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 513.

A reinforcement procedure and experimental laboratory approach were used to establish speech in 6 previously mute, schizophrenic children. A set of discrimination procedures (in which speech approximating that of an adult was rewarded) was used to teach imitative speech. Then schizophrenic Ss and 6 previously echolalic children participated in a training program in which they were taught a labeling vocabulary, the expression of demands, and abstract speech, such as the use pronouns, prepositions, and time. Within one year, the schizophrenic Ss had learned imitative speech and various degrees of abstract speech, and the previously echolalic children had learned how to use and respond to prepositions. (No refs.) - *M.G. Conant.*

1277 EDGAR, CLARA LEE, BALL, THOMAS S., McINTYRE, ROBERT B., & SHOTWELL, ANNA M. Effects of sensory-motor training on adaptive behavior. *American Journal of Mental Deficiency*, 73(5):713-720, 1969.

It was hypothesized that children in the sensory-motor period of development would show gains in adaptive behavior if given sensory-motor training. Adaptive behavior is defined as all behavior which enables the individual to cope with and master his environment. Eleven MR, organically impaired young children, (mean MA 15 mos) were given individual sensory-motor training. A similar group had individual attention. Gesell Developmental Schedules were administered before and after 8 months training. Significant differences between the gains of the 2 groups are discussed in relation to Kephart's theory of perceptual-motor development and Piaget's theory of cognitive development (30 refs.) - *Journal abstract.*

Pacific State Hospital
Box 100
Pomona, California 91766

1278 BERRYMAN, JOAN D. Oral evocation of vocalization. *American Journal of Mental Deficiency*, 73(4):611-625, 1969.

Two degrees of oral stimulus structure (structured, nonstructured) and 2 sentence types (interrogative, imperative) were compared on the basis of effectiveness in evoking vocalization. Under a repeated measurements design, each of 40 moderately or severely MR institutionalized children received trials on each of the 4 oral stimuli. A higher frequency ($p < .05$) of vocal response occurred after the interrogative than after the imperative stimuli. No differences in length or reaction time of responses occurred as a function of sentence type. No differences in frequency, length, or reaction time were found as a result of degree of oral stimulus structure. The application of findings was discussed. (14 refs.) - *Journal abstract.*

Speech and Hearing Clinic
Baldwin Hall, Room 101
University of Georgia
Athens, Georgia 30601

1279 BURNS, KEVIN. The educable retarded adult in society. *Deficience Mentale/Mental Retardation*, 18(3):2-5, 1968.

Although EMRs have the potential for useful lives, they need special care because of their disabilities and because they drop out of school early, have little money, and also face the same problems as the normal young adult. Schools should provide training, and industry should supply jobs for the EMR. Rehabilitation must include a loving home, financial security, and satisfying activity and responsibility. Early diagnosis of MR is necessary so that a program of special care can be initiated at an early age. Schools need special classes, and extended vocational training after high school should be available. (1 ref.) - *M. Plessinger.*

Nova Scotia Youth Training Centre
Truro
Nova Scotia, Canada

1280 HART, WAYNE. Psychiatric management of the mentally retarded child. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 10, 207-216.

It is important to distinguish MR from emotional disturbance syndromes—infantile autism, childhood schizophrenia, severe anaclitic depression, emotional deprivation, and severe neurosis. About 85% of MRs can be trained in highly structured and consistent educational and therapeutic programs. Training can be facilitated by honest communication with parents and other family members. (No refs.) - *J.M. Gardner.*

1281 HAVELKOVA, MILADA. Follow-up study of 71 children diagnosed as psychotic in preschool age. *American Journal of Orthopsychiatry*, 38(5):846-857, 1968.

A group of 71 children diagnosed as psychotic during preschool years was followed for at least 4 years after original assessment. Autistic children with gross brain damage and clear-cut MR were eliminated, and the remaining children were placed in an intensive treatment and nursery program for 3 years (42 treated Ss) or followed irregularly as out-patients (29 untreated Ss). Although treatment did not appear to change the pattern of illness, it did improve ability to attend school

if initiated at an early age and may have allowed for the better use of original intellectual potential. The natural history of childhood psychosis appeared to be maturation from an autistic to a psuedoneurotic form, and an earlier "age of change" was positively correlated with normal intellect. Natural history also implied a deterioration of intelligence, and the role of therapy seemed to lie in utilizing intellectual potential to adjust to educational situations rather than in altering the psychotic process. (18 refs.) - *E.L. Rowan.*

Clinic for Psychological Medicine
The Hospital for Sick Children
555 University Avenue
Toronto 2, Canada

1282 MINDE, K., & MALER, L. Psychiatric counseling on a pediatric medical ward: A controlled evaluation. *Journal of Pediatrics*, 72(4):452-460, 1968.

Children (CA 5-12 yrs) who were visited by a child psychiatrist soon after their admission to a general medical ward rated themselves as less anxious and left the hospital earlier than did controls who did not have such contact. Of 108 consecutive admissions (MR excluded), all completed a self-rating questionnaire. Half were then interviewed by a psychiatrist who discussed the illness and the feelings of the child and his family. All children then completed the self-rating again. Decreased anxiety in the interviewed group was revealed by individual test items which dealt with relationships between children and hospitals, doctors, and parents. A further study of 41 children revealed no significant differences between the effect of a simple non-threatening contact with a physician and that of a simple explanation of illness. Friendly contact with a white-coated doctor early in hospitalization, in a hospital atmosphere where parents are welcome and recreation is emphasized, significantly reduces anxiety, especially in younger children where the effects of separation are most severe. (26 refs.) - *E.L. Rowan.*

Montreal Children's Hospital
McGill University
Montreal, Quebec, Canada

TREATMENT AND TRAINING ASPECTS—OCCUPATIONAL

1283 GILL, ROY C. Individualizing the curriculum for educable mentally retarded high school students through prevocational evaluation. *Education and Training of the Mentally Retarded*, 3(4):169-179, 1968.

In Phoenix Arizona, tenth and eleventh grade EMRs are referred to a vocational rehabilitation counselor for physical and psychological tests, prevocational and work adjustment evaluation, vocational training, and placement. Prevocational evaluation may require weeks or months at a rehabilitation facility hospital, sheltered workshop, or evaluation center. The Arizona Division of Vocational Rehabilitation rating scale provides vocational information, and results are keyed to the requirements of 4,000 jobs. The test is divided into 7 scales which provide information on social and personality characteristics, work attitudes and adjustment, aptitudes, temperament, interests, physical capabilities, and ability to work under various conditions. After prevocational evaluation, the evaluator, vocational rehabilitation counselor, psychologist, special education teacher, workshop supervisor, program coordinator, and placement officer formulate a prevocational plan and personalized curriculum. Feedback from the counselor, special education teacher, and work supervisor is used to coordinate the plan and make needed modifications. The plan is designed for training, placement in community, and followup. (5 refs.) - *M. Plessinger.*

Arizona Division of Vocational
Rehabilitation
Phoenix, Arizona 85000

1284 BARTLETT, RICHARD H. *A Cooperative Program of Special Education and Vocational Rehabilitation with the Dekalb County Board of Education.* Atlanta, Georgia, State Department of Education, 1967, 81 p. Mimeographed.

The specific objectives of the 3-year cooperative demonstration program of vocational rehabilitation and special education for secondary school EMRs in Dekalb County (Georgia) included: comprehensive rehabilitation diagnosis; evaluation of employment potential; evaluation of individual study and work plans by the joint project staff; training in personal-social adjustment; job tryouts, placement, and supervision; and improved diagnosis, placement, and curriculum development for the preparation of students for future project referral. The project included 136 Ss (mean IQ 77; CA 13 yrs to 19 yrs 9 mos). Curriculum emphasis was on social living, living science, and prevocational development. Project staff consisted of a director, associate director, local director of special education, 4 special education teachers, guidance counselor, curriculum specialist, vocational evaluator, vocational adjustment counselor, vocational rehabilitation counselor, and vocational rehabilitation specialist. Project experience implied that effective rehabilitation programs should be based on interagency cooperation and agreement on basic philosophy and on the use of the same eligibility criteria by rehabilitation and state education agencies. Areas of competency which proved to be essential and basic to vocational success were: learning and adjustment; motivation and attitude toward work; interpersonal relations; and perseverance.

Parent counseling was an important part of the program and was used to make parents aware of program goals and objectives. (No refs.) - *J.K. Wyatt.*

1285 BUCHHOLTZ, KAY. Lightweight power tool provides self-directed outlet for students. *Winnower*, 5(1):28-30, 1969.

After finishing their academic work, MRs in a special education class benefit from self-directed work with a light-weight multi-purpose power tool. The projects are satisfying and provide useful training. The Moto-Shop (Dremel Manufacturing Company, Racine, Wisconsin) is a safe jig saw that cuts wood up to 2 x 4, plastic, and metal. It has attachments—a grinding wheel, wire wheel, buffer, and a shaft to attach carving tools, brushes, and cutters. The unit weighs 10 pounds, anchors securely, and needs no special equipment. Students use basswood, scrap pine, plywood, and chipboard to make name plates and rings, and they use the attachments to grind scissors, make door stops, and shine metal. (No refs.) - *M. Plessinger.*

Richards School
Whitefish Bay, Wisconsin

1286 DETTENHEIM, EDWARD N. The monetary system. *Mental Retardation/MR*, 7(1):54-56, 1969.

Thirteen girls and 14 boys (CA 13-17; IQ 48-75; MA 8-12) who were ready for prevocational training in Ruston State School (Louisiana) participated in a program which provided them with concrete, practical experiences which included handling and using money, living in cottages, and relative freedom. The program was designed so that Ss experienced the same basic financial benefits and demands as persons in the community. They had to locate and obtain employment for which they were paid at community rates, and they were financially accountable for all goods and services received. Disciplinary actions were administered by a special court. Residents participating in the project now identify with the staff rather than with the rest of the resident population. They are anxious to learn and learn best through practical experiences; they have gained rapid social maturity. Behavior and disciplinary problems were minimal. (No refs.) - *V.G. Votano.*

Ruston State School
Ruston, Louisiana 71270

1287 TURNER, MARY. A work experience program for the educable mentally retarded at the elementary school level. *Education and Training of the Mentally Retarded*, 3(4):199-201, 1968.

A work experience program for EMRs at the elementary school level is used to develop social ease and work readiness. Since 1964, EMRs in Westlake School (California) work in necessary school jobs for a 2-hour period each day. A week of orientation training stresses cleanliness, quietness, dependability, good manners, hard work, and accurate record keeping. Free lunches were cancelled and now are earned by working in the cafeteria, on the grounds, and elsewhere in the school. A student can be fired for breaking the rules, and when this occurs, he must bring lunch from home until he is rehired. Students take pride and satisfaction in their jobs, and after an initial learning period, jobs are performed steadily and effectively. Records are kept by each student, and pay is in the form of tokens. School jobs presently outnumber available EMR students. The first students to participate in the program are now in the High School Work Experience Program and have been rated as more ready for this work than students from other schools. (No refs.) - *M. Plessinger.*

Westlake School
Santa Cruz, California 95060

1288 HEILBRUN, ALFRED B., JR., & JORDAN, BRIAN T. Vocational rehabilitation of the socially disadvantaged: Demographic and intellectual correlates of outcome. *Personnel and Guidance Journal*, 47(3):213-217, 1968.

Demographic and intellectual characteristics of 185 socially disadvantaged persons were studied to identify predictors of rehabilitation success which was defined as completing a 7-week assessment program and keeping a job for a 6-month follow-up period. Assessment was designed to identify individual aptitudes, interests, and personality factors and included the areas of social service, psychology, psychiatry, medicine, work motivation, and remedial education. Assessment data were coordinated to formulate a vocational plan for each S. The Ss (62% Negro, 38% Caucasian; 71 males, 114 females; average CA 30 yrs) had an average of 8.8 years of school, and a large majority were problem referrals from other social agencies. All were within normal physical and mental ranges. Factor analysis of demographic and intellectual variables revealed that race, sex, marital status, and illegitimate offspring were not significant predictors of success. A significant ($p < .05$) number of Negro women with illegitimate children completed the assessment but remained unemployed. Successful clients tended to be older than unsuccessful clients. Educational level was not a significant predictor. Successful females had significantly ($p < .05$) higher Verbal and Performance IQs than their unsuccessful counterparts. Verbal IQ was significantly ($p < .05$) related to success for Caucasian males, but inversely related to success for Negro males. Causians were significantly ($p < .01$) superior to Negroes on both Verbal and Performance IQ measures. An index of Verbal IQ minus Performance IQ proved to be a significant ($p < .05$) predictor of rehabilitative success for lower class white males, but not for Negroes. (5 refs.) - *S. Markworth.*

Department of Psychology
Emory University
Atlanta
Georgia 30322

1289 SOUTH DAKOTA. VOCATIONAL REHABILITATION DIVISION. Coordinated Program of Special Education and Vocational Rehabilitation Services for the Mentally Retarded. Pierre, South Dakota, 1967, 54 p. Mimeographed.

The purpose of a cooperative research and demonstration project developed by the South Dakota Division of Vocational Rehabilitation and the Redfield State School and Hospital was to rehabilitate selected resident and non-resident MRs by providing necessary personal, social, psychological, medical, vocational, and related services. Rehabilitation was defined as fitness to engage in remunerative occupations. The project program for institutionalized Ss included classroom instruction to help them adapt to community life, social adjustment training, work evaluation and training, and individual and group counseling. The program for community Ss involved public education, job development, job placement, and follow-up. An evaluation of the success of 24 female and 36 male clients (IQ range 50-97) admitted to this project during its first 3 years revealed that 29 were successful, 6 were unsuccessful, and the success of 25 could not be determined. There were no significant differences between success groups on the Wechsler Adult Intelligence Scale; however, unsuccessful Ss had higher Performance Scale scores than successful Ss. Differences between groups in age of admission to Redfield State School and Hospital or the Rehabilitation program indicated that the older a person was at the time of admission, the poorer his chances for success. Job evaluations provided the best predictive data on capacity to work. Most Ss did not experience difficulty in doing the required work when they were employed in the community. Difficulties arose because of social behavior or inability to get along with others. Project problems included providing an adequate staff and sufficient community experiences. (9 refs.) - *J.K. Wyatt.*

1290 FRAME, H.B.P. Industrial therapy in the Netherlands. *Nursing Mirror*, 127(11):23-26, 1968.

The "Municipal Social Employment Scheme for Manual Workers" was the basis for the organization of workshops for the MR, emotionally disturbed, and physically handicapped in the Netherlands. The objective of this scheme was to find adapted work for persons capable of doing manual work who cannot be placed in competitive employment. Out of a population of 12 million, 27,000 were eligible. The largest category were MR, with 5,486 employed in workshops in 1965. Eligible persons had to be under age 65, able to do productive work and able to achieve at least 1/3 the minimum production expected in normal industry. They had to be registered as unemployed, with regular employment not possible at that time. Workshop employees worked 45 hours/week and received the same days off as in normal industry. Activities were classified into 4 groups, and hourly pay rate was judged on: quantity and quality of work, devotion to and interest in work, attitudes toward the environment and rules, and care of materials, tools, and machinery. Activities included production of articles for industry and of the workshops' own design. The use of industrial work in rehabilitation is increasing, although most hospitals also carry on traditional craftwork. The primary objective of the workshop is rehabilitation rather than profit; however, the atmosphere in the workshops is like that of a true factory. Sheltered workshops offer an attractive means of providing permanent employment for the person who can do productive work but is in need of a protected environment. (No refs.) - *B. Parker.*

Saxondale Hospital
Nottingham, England

1291 HANNAFORD, ALONZO E., & WORTH, LO ANNE L. *A Guide to Introductory Developmental Activities for the Trainable Mentally Handicapped in the Industrial Education Laboratory.* Normal, Illinois, Illinois State University, 1968, 31 p. (Price unknown)

The introductory industrial eduation activities for TMRs included in this booklet were developed to be used during the beginning stages of industrial education programs and to serve as aids to total programing. Activities are designed to enhance perceptual-motor and manual development, increase coordination and dexterity, and facilitate the preparation of TMRs for future sheltered placement and living. The sequential patterning of the materials and skills needed to accomplish each activity enhance motivation, provide reward, and require minimal teacher intervention. Activity sequence is not structured, and one activity is not specifically developed to precede or follow another. An explanation and description of each activity includes a photograph of essential equipment, materials, and layout, an analysis of the procedure required to complete the activity, and an analysis of the construction of the activity. This guide should be of interest to educators, special educators, curriculum planners, and industrial education teachers. (No refs.) - *J.K. Wyatt.*

CONTENTS: Introduction; Basic Materials Used; Tools Used; Analysis of Activities.

1292 CROSSON, JAMES E. A technique for programming sheltered workshop environments for training severely retarded workers. *American Journal of Mental Deficiency*, 73(5):814-818, 1969.

Sheltered work environments for the MR typically operate to "find work" in terms of what their employees "can do." Ideally such environments should operate to change the "non-employable" into "employable." Workshop staff should "find ways" to train the retarded rather than "find work" to match present skills. This paper describes one approach to the development of more efficient and effective vocational training procedures; the direct application of principles of operant behavior in a work-training environment. (9 refs.) - *Journal abstract.*

Research and Training Center in Mental Retardation
University of Oregon
1662 Columbia
Eugene, Oregon 97403

1293 ORZACK, LOUIS H., HALLIDAY, HARRY, & CASSELL, JOHN T. ***The Evolution of a Sheltered Workshop for the Retarded: The Idea and Process of Implementation 1957-1968.*** Bridgeport, Connecticut, Parents and Friends of Mentally Retarded Children of Bridgeport, Connecticut, Inc., 1969, 79 p. (Price unknown).

Since its origin in 1957, the Kennedy Center Workshop of the Parents and Friends of Mentally Retarded Children of Bridgeport, Inc. (Connecticut) has evolved from a small unit focused on the manufacture of easily marketable household products which served 7 individuals to a comprehensive evaluation, training, and work experience center which served 105 persons during the past year. This discussion of important factors in the development of the workshop and significant changes in its history includes: a description of the current workshop and data on vocational rehabilitation funds and services; agreements and contracts with public and private agencies; adult, clinical, and speech and hearing services; and the evolution and termination of a satellite workshop program. This monograph should be of interest to educators, social workers, psychiatrists, psychologists, rehabilitators, and parents of MRs. (20 refs.) - *J.K. Wyatt.*

CONTENTS: Outcomes of Planning nd Action: A Statement of Issues; The Current Workshop; History of Workshop Services; The Involvement of Vocational Rehabilitation Funds and Services; The Workshop and Adult Services; The Workshop and Clinical Services; The Workshop and Speech and Hearing Services; Satellite Workshops.

1294 ALEXANDER, JIM. Opportunity for "multi" handicapped. *Motive*, 14(6):23-25, 1968.

A pilot rehabilitation program for the blind MR at Orient State Institute (Ohio) offers training in sheltered workshop skills. Mobility training and the development of lengthened attention spans were preliminary steps to more advanced skills. Although most of these individuals will have to remain in a sheltered workshop environment, a few have advanced to outside training at a Vision Center, and one S is expected to become self-sufficient in the community. Early training of the multi-handicapped should increase their ability to respond to training. (No refs.) - *E.F. MacGregor.*

Orient State Institute
Orient, Ohio 43146

1295 PRESCOTT, JACQUELIN. A place for slow learners. *American Vocational Journal*, 43(9):49-50, 1968.

A gainful employment program for home economics special class students emphasized child care and provided: a place where the girls were trained to work with children; special school schedules; tests of child-care knowledge; supervised work experience; and job preparation. During the first semester, special education girls were trained in nursery schools. Classroom content emphasized grooming, child development, interviewing, and making appointments. The girls were tested by bringing their younger brothers and sisters into the classroom and discussing specific phases of child development. During the second semester, the girls worked in nursery schools and helped to direct activities, clean, and supervise. At the close of the program, slow learners had improved their concepts of themselves and seemed to be more confident. (No refs.) - *V. G. Votano.*

State Department of Education
Tallahassee, Florida 32301

1296 MORLEY, K.G. Training the handicapped adult. *Teaching and Training*, 6(2):38-43, 1968.

Adult training centers for MRs should include sheltered workshops in order to maintain a balance between social and work training. The centers would provide social and work habit training, and when trainees reach an acceptable level of social competence, they should work in the sheltered workshop, a wage-earning factory, and have an opportunity to move eventually to open employment. This type of setting should be used to train individuals with various disabilities. (No refs.) - *V.G. Votano.*

Croydon Industries for the Disabled
London, England

1297 HERSHENSON, DAVID B. A vocational life-stage approach to sheltered workshop practice. *Journal of Rehabilitation*, 34(6):26-27, 1968.

Vocational development may be divided into sequential stages which include a social-amniotic stage, a self-differentiation stage, a stage of competence, a stage of independence, and a stage of commitment. These stages may be used as a conceptual basis to explain the sheltered workshop therapeutic process. The workshop provides a milieu to which the client may adapt and points out skills and errors in work as well as in interpersonal relationships. The workshop sets limits and goals, allows the client to seek his own level, and helps the client experience satisfaction and meaningfulness in his work. This sheltered workshop model of vocational development is concerned with the adaptive use of energies, and when operationalized, provides opportunities for assessment, planning, and evaluation within a consistent frame of reference. (3 refs.) - *J. King.*

Illinois Institute of Technology
Chicago, Illinois 60616

1298 KAUFMAN, HARVEY ISADORE. Cognitive and noncognitive indices of employability in a sampling of 17 to 21 year old mentally retarded individuals. *Dissertation Abstracts*, 28A(8):3027-3028, 1968.

An investigation of cognitive and noncognitive factors related to the ability to obtain and maintain employment in 229 MRs (CA 17-21 yrs; IQ 50-84) revealed that common sense, as measured by the Wechsler Adult Intelligence Scale (WAIS), and

arithmetic achievement, as measured by the Wide Range Achievement Test, were the best predictor variables. Twenty-four independent variables, taken from the WAIS, Wide Range Achievement Test, Self Attitude Scale, and Occupational Aspiration Questionnaire, were investigated. Criterion for employability was employment for a period of 6 months. Little relationship was found between employment and level of assessed intellectual functioning. (No refs.) - *J. K. Wyatt.*

No address

1299 SONG, A.Y., & SONG, R.H. Prediction of job efficiency of institutionalized retardates in the community. *American Journal of Mental Deficiency*, 73(4):567-571, 1969.

A pilot study was conducted to identify which of selected variables best predicted job efficiency of retardates in community employment. A predictor group of 18 cognitive, work and personality, and demographic factors for the criterion was hypothesized. The results indicated that the 18 predictors yielded an R of .77, and that selected 6 predictors yielded an R of .66 significant at $p < .05$. Intellectual and work habit variables were the most important predictors of later efficiency in the community job when their relations to other variables were taken into account. Race, sex, and withdrawn and aggressive behavior as observed at the institution added little to the improvement of prediction. (8 refs.) - *Journal abstract.*

Cooperative Educational Service
Agency 18
Burlington, Wisconsin 53105

1300 Reading-free tests reach new groups. *Motive*, 14(6):16-19, 1968.

A reading-free vocational interest test which is being developed for EMRs (CA 17-20; IQ 50-75) will provide a more accurate assessment of job interests and capabilities than is possible with standard tests now in use. The test will use pictures of occupational interests which show work activities in job categories suitable for the EMR. It will be based on 11 job categories for males and 8 job categories for females, with 15 work activities in each category. Ss will select one picture from a 3-picture set as a preferred activity. To standardize scores for this instrument, 8,000 Ss (4,000 males; 4,000 females) will be tested. (No refs.) - *B. Bradford.*

1301 AYER, HOWARD E., & LYNCH, JEREMIAH R. Association of disability and selected occupational hazards. *Archives of Environmental Health*, 17(2):225-231, 1968.

A comparison of classifications of occupational groups by degree of exposure to airborne particulates, irritant gases, organic vapors, and temperature extremes with grouped proportionate morbidity ratios for 216 occupations for 75 disease conditions revealed no significant associations between MR, cerebral palsy, or epilepsy and these selected occupational hazards. Occupational hazards were classified by occupation by a panel of industrial hygienists, and group proportionate morbidity ratios were taken from the disability awards made by the Social Security Administration. There were negative relationships between MR and irritant gases, particulate exposure, and heat and cold; a factor which may be due to the use of employment procedures in hazardous occupations which result in a physically and mentally healthier employee group or to the greater physical activities of the hazardous groups studied. (7 refs.) - *J. King.*

Occupational Health Program
1014 Broadway
Cincinnati, Ohio 45202

1302 U.S. VOCATIONAL REHABILITATION DEPARTMENT. *A National Follow-Up Study of Mental Retardates Employed by the Federal Government.* (Final Report) Oswald, Hedwig W., Social and Rehabilitation Service, (Grant RD-2425-G), 1968, 133 p.

A follow-up study of factors related to the employment, training, and counseling of the 2,747 MRs employed by the Federal government between 1964 and 1966 disclosed that they were performing over 100 different kinds of jobs and recommended that the special government hiring authority for the MR be continued on an indefinite or permanent basis. Data were obtained from questionnaires completed by vocational rehabilitation counselors, Federal employers, job supervisors for MR employees, and MR employees. The majority of the MRs in the sample were male (CA 20-25; mean IQ 72.9). Job classification breakdowns were 48% wage board, 31% clerical, and 21% postal services. Of the 62% of the MRs still employed early in 1968, 40% had experienced job mobility to higher pay grades and changes in job classification. IQ scores, grade level completed in school, and reading achievement did not appear to be related to job performance; however there were high correlations between job success and the ability to take directions, follow through on tasks, and pace work. A great deal of the success of the program was due to the cooperative placement efforts of the counselor and employer. Counselors, personnel officers, and supervisors supported the value of substituting the professional judgment of a vocational rehabilitation counselor for qualifying examinations in certifying MRs for specific jobs. These findings indicate that rehabilitation counselors need adequate time to provide follow-up services for clients and employers and that rehabilitation staffs need to develop better understanding of their roles and insights about MRs among themselves and between themselves and the employers. (No refs.) - *J.K. Wyatt.*

1303 BARBER, GERARD M. Employer's attitudes towards hiring mentally retarded workers. 1967, 104 p. Mimeographed. (Copies available from Parents and Friends of Mentally Retarded Children of Bridgeport, Connecticut.)

A survey of 56 industrial employers in Bridgeport (Connecticut) revealed that 30 were unwilling to hire MRs. Positive attitudes towards hiring the MR were

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significantly related (.05 level) to percentage of jobs the MR could perform in the industry, previous experience with the MR, the favorableness of the information the employer had heard about hiring the MR, and non-union establishments. Of 20 employers who had experience with MR workers, 9 reported their experiences as unsuccessful. The most important sources of information to an employer in the trial stage of MR employment were personnel associated with the worker in a training program and previous employers. Although 52 employers desired more information about MRs and employers experiences with them, all but 2 already possessed some information, indicating that this group of employers may have progressed from the awareness stage to the interest stage in regard to employing the MR. An information campaign directed toward employer's interests may be warranted at this time. Characteristics of MRs which would lead employers to disqualify them for employment were poor body coordination (63%), limited agility (43%), poor medical history (43%), difficulty in speaking and being understood (43%), immature behavior (36%), and police record (36%). Employers should be guided in the evaluation of MRs for employment and a negative experience with MRs may be more damaging to an employer's attitude than no experience at all. (28-item bibliog.) - *J.K. Wyatt.*

1304 SINICK, DANIEL. Educating the community. *Journal of Rehabilitation*, 34(3):25-27, 40, 1968.

Surveys indicate that disabled workers have good work records and attitudes, stablize the work force, use special abilities, and decrease relief rolls. Employing the disabled does not increase the accident rate nor production costs such as insurance premiums and Workmen's Compensation. The public is not offended by seeing such employees, instead they may be impressed with the humanitarianism of the employer. The community could help in the employment of the disabled by establishing a central clearing house for job opportunities for the disabled and by lowering barriers to employment such as arbitrary medical and educational requirements. Employers can become increasingly involved in partnerships which involve the disabled and are aimed at bringing added profit to the economy and increased value to humanity. (No refs.) - *V.G. Votano.*

George Washington University
Washington, D.C. 20006

1305 DORGAN, JEAN. Employment of the handicapped. *Deficience Mentale/Mental Retardation*, 18(3):6-9, 1968.

The Department of Manpower and Immigration was formed in 1965 by the government of Canada to consolidate and broaden employment services, including those for the handicapped. Two hundred and sixteen Canada Manpower Centers and 70 Branch offices offer counseling and employment services to all who could be employed. The Occupational Training for Adults Program provides training and a training allowance. The Manpower Mobility Program helps persons to move to another locality to take advantage of training or employment opportunities. The Vocational Rehabilitation of Disabled Persons Act of 1960 is administered under the Department and provides services for the disabled which include counseling, training, placement, and the coordination of volunteer groups and other personnel.. By 1967, 19,224 disabled had been trained and employed. These workers earn $40 million each year. Services are being developed for specialized groups such as the MR, poor, ghetto dwellers, and alcoholics. (3 refs.) - *M. Plessinger.*

Department of Manpower and Immigration
Ottawa, Ontario, Canada

TREATMENT AND TRAINING ASPECTS—THERAPY

1306 DAVIS, KAREN V., SPRAGUE, ROBERT L., & WERRY, JOHN S. Stereotyped behavior and activity level in severe retardates: The effect of drugs. *American Journal of Mental Deficiency*, 73(5):721-727, 1969.

Nine PMR institutionalized males (mean CA 16 yrs 8 mos) with severe stereotypies were observed under 2 drug (methylphenidate 0.44 mg/kg and thioridazine 1.3 mg/kg), placebo, and no drug conditions. A telemetric record of overall activity was taken, and 5 stereotyped and 6 non-stereotyped behaviors rated during the 3 daily sessions under each drug condition. Ss served as their own controls. Thioridazine significantly decreased stereotyped behavior without affecting non-stereotyped behavior. However, the large proportion of subject variance suggested that individual responses to drugs, especially stimulants, are quite variable. Results supported a theory of arousal characterizing stereotypy as the end-product of an aroused state. (24 refs.) - *Journal abstract.*

Children's Research Center
University of Illinois
Champaign
Illinois 61820

1307 GAURON, EUGENE F., & ROWLEY, VINTON N. Behavioral effects of a chronic drug administration experience in infancy. *Journal of Genetic Psychology*, 112(2):237-247, 1968.

The effects of prolonged administration of tranquilizing drugs on 64 rats were evaluated to identify possible influences on development in infancy. A series of experiments involved avoidance conditioning, competition testing, and analysis of sexual behavior and fertility. Albino rats from 8 litters were subdivided by split-litter (matched on sex) techniques into 3 experimental drug groups and a control group. Daily dosages for each group were 2 mg/kg chlorpromazine, 2 mg/kg thioridazine, 4 mg/kg prochlorperazine, and 2 mg/kg isotonic saline, respectively. Drugs were given from 5-55 days of life. Results showed that prolonged drug administration produced effects similar to those brought about by other types of early experience, with the exception that long-term drug effects were more pervasive. The various drugs affected behavior differently, and there was no unidirectional drug effect. However, behaviors were affected consistently by each drug. The groups exhibited great differences on competition testing; prochlorperazine animals were alert and active, while chlorpromazine animals seemed passive and fearful. Chlorpromazine appeared to reduce fertility. These tentative data require replication and additional research verification; however, the range of different behaviors modified by chronic drug administration observed in these animals indicates that caution should be exercised in administration of tranquilizers on an indiscriminate basis. (11 refs.) - *B. Bradley.*

University of Iowa
Iowa City, Iowa 52240

1308 WEISS, CHARLES F., HEFFELFINGER, JOHN C., & BUCHANAN, ROBERT A. Serial Dilantin^{R} levels in mentally retarded children. *American Journal of Mental Deficiency*, 73(5):826-830, 1969.

After baseline diphenylhydantoin blood level determinations, 9 retarded children were transferred to a new Dilantin^{R} suspension, 30 mgm/5ml, for 3 months with frequent blood level determinations, then returned to their original form of medication for the purpose of evaluating the new suspension. The blood level results provide further information about the correct diphenylhydantoin dose for retarded patients. When the dose exceeded 9 mgm/kg/day, the blood levels exceeded 20 μgm/ml, the level at which side effects usually commence to occur. Due to their retardation, none of the patients with levels over 20 μgm/ml experienced the usual diphenylhydantoin-attributable side effects of ataxia, dysarthria, or mental confusion. Therefore, this dose limit should not be exceeded when administering diphenylhydatoin to retarded children. (9 refs.) - *Journal abstract.*

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1309 LUCAS, ALEXANDER R., & PASLEY, FRANK C. Psychoactive drugs in the treatment of emotionally disturbed children: Haloperidol and diazepam. *Comprehensive Psychiatry*, 10(5):376-386, 1969.

Double-blind, placebo-controlled, cross-over drug trials in which haloperidol was used with 15 children on an inpatient psychiatric unit and diazepan was used with 12 children from the unit and from a day care program were carried out. Children in the haloperidol group were anxious, hyperexcitable, aggressive, and impulsive. Staff ratings showed improvement in oppositional behavior, relationship to peers, and response to limit setting in 10 patients who completed the study. Global ratings of clinical change showed improvement in 62%, and more significantly, these children were better able to participate in the total treatment program. Most prominent side effects were drowsiness and lethargy, but only 3 patients required treatment with anti-Parkinsonian medication. Among the 12 less disturbed, but anxious children who received diazepam, there was no significant difference between drug and placebo response, and 2/3 had disturbing side effects, principally somnolence. Haloperidol appeared to be an acceptable alternative to phenothiazines in severely disturbed children, but diazepam was not of value as an anti-anxiety agent in young children, although its use with adolescents bears further investigation. (9 refs.) - *E.L. Rowan.*

Lafayette Clinic
Detroit, Michigan 48200

1310 UCER, EROL, GAULDEN, GARY L., & MAZZEO, ANTHONY J. Utilizing film therapy with emotionally disturbed retardates. *Mental Retardation/MR*, 6(1):35-38, 1968.

Standard mental hygiene films were used as an adjunct to group therapy with 49 emotionally disturbed institutionalized male adult MRs (CA 18-45; IQ 40-84). The Ss represented heterogeneous levels of emotional problems (neuroses, psychoses, character disorders, and organics). Weekly film sessions were followed by group discussion led by a therapist. Discussions were designed to develop reality testing and social interaction. Therapeutic interpretation followed each session. The patients made notable improvements in social interaction, insight, and adjustment, and withdrawal was lessened. Results indicate that films may provide an effective adjunct to group therapy. (No refs.) - *J.M. Gardner.*

Lapeer State Home and Training School
Lapeer, Michigan 48446

1311 PRIESHOF, L., & CASTELIJNS, A. Logopedische behandeling van zwakzinnige kinderen opgenomen in een internaat (Speech therapy for mentally retarded children residing in a boarding school). *Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg*, 5(4):148-153, 1968.

Although it has generally been thought that speech therapy for the TMR and SMR is of little value since little or no speech is present, some improvement was

observed when therapy was used with 2 young Ss. Although each S had an individual therapy program, the general methods used included the Bobath treatment and the Schlaffhorst-Andersen method. The first S, a spastic girl (CA 6 yrs) with hearing loss, began to babble passively after 6 months of therapy. From this point it was possible to begin work on muscle coordination in the mouth. A boy (CA 3 yrs 6 mos) was able to speak spontaneously after one year of therapy, although he still had some trouble with difficult sounds. (No refs.) - *S.L. Hamersley.*

Kliniek voor Zwakzinnigen "De Hondsberg"
Oisterwijk, Holland

1312 ADLER, BELLE, REES, NORMA S., SERWER, BLANCHE L., STOCKER, BEATRICE. Implications of vowel diphthong distortions. *Exceptional Children*, 35(1):51-55, 1968.

Data on 11 children in a high IQ group (mean IQ 122), 16 children in an average IQ group (mean IQ 101), and 15 children in a low IQ group (mean IQ 77) who had functional articulation disorders and were enrolled for speech therapy were analyzed to identify distinguishing features. Normal hearing was found in all Ss. Variables under analysis included speech patterns, sex, intelligence, interaction between intelligence and sex, position in family, duration of therapy, and personality. Results showed major variables to be a predominance of boys, characteristic speech patterns, and personality factors which involved, in rank order, immaturity, anxiety, poor body image, insecurity, poor motor coordination, distortion of reality, repressed aggression, and other characteristics. Immaturity, organicity, and poor motor coordination were particularly prevalent in the low IQ group. Psychological evaluation and parent counseling were important aids in treatment of these Ss. (12 refs.) - *B. Bradley.*

Queens College
New York, New York 10021

1313 RICE, HAROLD K., McDANIEL, MARTHA W., & DENNEY, SARAH L. Operant conditioning techniques for use in the physical rehabilitation of the multiply handicapped retarded patient. *Physical Therapy*, 48(4):342-346, 1968.

Behavior modification techniques can be applied to individuals regardless of intellectual level and physical condition. In using behavioral techniques with PMR non-ambulatory patients, it is important to determine individual range of possible motor responses. Initial responses are instituted in successive steps, and a reward (usually food) is given for each successful approximation. After the response has been established, the experimenter can shift to various schedules of reinforcement to regulate the response rate and resistance to extinction. Imitation training is a useful variant of operant conditioning procedures, which can be used to train a large variety of behaviors, especially speech. (15 refs.) - *J.M. Gardner.*

Gracewood State School and Hospital
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Georgia 30812

1314 DENT, H.E. Operant conditioning as a tool in the habilitation of the mentally retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 873-876.

A variety of operant learning principles are used successfully with the retarded, who are sensitive to reinforcement and to shifts in schedules of reinforcement. MRs perform in a manner similar to that of non-retarded humans and animals under most schedules of reinforcement. Inter-subject variability is exhibited primarily under fixed interval and some multiple interval schedules. Primary reinforcers are used successfully in the acquisition of desired behavior, and secondary reinforcers, especially adult attention and approval, are powerful in the maintenance of a behavior pattern. Various forms of negative reinforcement, including the "time out" procedure, aversive stimulation, extinction, and reinforcement of incompatible responses, are also used with success. The application of operant procedures outside the laboratory is increasing. (7 refs.) - *M.G. Conant.*

Division of Mental Retardation
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San Francisco, California

1315 POLLACK, CECELIA. A conditioning approach to frustration reaction in minimally brain-injured children. *Journal of Learning Disabilities*, 1(11):681-688, 1968.

Six minimally brain-injured boys (CA 8-12 yrs; IQ range 80-95), 5 of whom had low frustration levels evidenced by frequent emotional outbursts, used verbal conditioning procedures based on selective reinforcement to learn to control their frustration. Ss attended a special class, and all had psychoneurological learning disabilities in perceptual-cognitive and/or behavior areas. Conditioning began with an explanatory discussion of frustration, specific individual examples to help the Ss associate this abstract concept with concrete action, and a description of a method which Ss could use to control frustration outbursts. Ss were instructed to form the letter "C" with the fingers of their right hand when they began to feel angry. "C" stood for control, and the finger activity was designed to eliminate anger outbursts. Hope of academic promotion and a prize of 25 stars (one for each act of control) provided motivation and selective positive reinforcement. Ss achieved various levels of control of frustration (significant control in 4 cases). Progress appeared to depend on individual ability to understand the abstract concept of frustration reaction and use this understanding to control behavior. (9 refs.) - *C. Rowan.*

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New York 11219

1316 KAGIN, SANDRA GRAVES. Art and mental retardation: A challenge and a change (symposium). *Project News* of the Parsons State Hospital and Training Center, 4(8):13-19, 1968.

Art therapy for the MR should be based on a developmental model, exploit media dimension variables, and encourage the expression of creativity in a self-satisfying and socially acceptable manner. Group work helps the child progress from scribbling to the "pre-schematic" and "schematic" stages of representation, as awareness of reality and the environment increases. The reduction of competition and emphasis on individual differences helps the child to obtain personal pleasure from art and encourages communication. (8 refs.) - *C. Rowan.*

1317 KAGIN, ROBERTA. The use of music in therapy (symposium). *Project News* of the Parsons State Hospital and Training Center, 4(8):8-12, 1968.

As a discipline, music therapy has evolved from an emphasis on its healing qualities, through an emphasis on the importance of the therapist and the interpersonal relationship, to a final stage where music and therapy are regarded as mutually necessary aspects. Music therapy utilizes movement and sound in a structured activity to develop group participation, cooperation, individual responsibility, nonverbal communication, self-esteem, and individual expression. Undesirable behavior has been eliminated and the attention span of MRs has been lengthened when music has been used as a positive reinforcer. Since its organization in 1950, the National Association for Music Therapy has promoted unity and standardization; however, controlled scientific research is needed to document the achievements of music therapy. (4 refs.) - *C. Rowan.*

1318 BLAKE, D.H., & JOHNSON, A.H. Mobile bath for severely incapacitated or completely bedridden patient. *British Medical Journal*, 4(5633):759, 1968. (Letter)

A mobile bath was designed which allows the patient to be moved from bed to bath by one person. Basically, it is a wheeled trolley with a collapsible bath on top and a lever that allows the sides to fall. (No refs.) - *V.G. Votano.*

Bendigo Home and Hospital for the Aged
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Victoria, Australia

1319 LOEWENDAHL, EVELYN. Exploring basic motor activities in the mentally retarded. *American Corrective Therapy Journal*, 22(5):152-156, 1968.

Case histories of 3 MR girls include physical descriptions of the girls before and after treatment which improved their motor abilities. The first case, a female (CA 13 yrs; IQ 51-58) with brain damage, participated in a program designed to establish reward feelings and to accelerate reflex responses. Emotional and physical improvements, feelings of adequacy, and cooperative participation were observed after 14 months in the program. The program for the second case, a hyperactive female (CA 10 yrs) with cerebral palsy, was aimed at establishing flexibility, balance, and coordination and at improving attention span and feelings of adequacy. There were observable improvements in physical areas and in self-satisfaction and attention span after treatment. The third case, a female (CA 12 yrs) who showed aggression, hostility, and a marked restriction with excessive tightness in the lower limbs, is working to remove body tensions and gain better self-esteem. The activity programs employed constant repetition and exacting physical standards. (No refs.) - *V.G. Votano.*

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1320 GEDDES, DOLORES M. Effects of mobility patterning techniques upon selected motor skills of primary school educable mentally retarded children. *Research Quarterly*, 39(4):953-957, 1968.

The effects of mobility patterning techniques and special physical education activities on selected motor skills of 14 primary school EMR children (CA range 9 yrs 2 mos to 10 yrs 7 mos) were compared. Two primary classes with similar IQ scores received treatments, and 7 Ss in each class were included in the analysis. Experimental and control groups had 30-minute daily classes for 3 months. Every class began with 5 minutes of traditional exercises. The experimental group then received instruction in mobility patterning for crawling, creeping, and walking. Modifications of Doman's procedure were made by reducing the number of adults used in the patterning. The control group practiced tumbling, ball-playing, trampolining, rope-climbing, self-testing, and simple relays. Analysis of covariance data on selected motor skills which included leg power, dynamic balance, agility, and fine manual coordination showed significantly better performance ($p < .01$) on measures of leg power for the control group, and no between-group differences for the other variables investigated. (18 refs.) - *B. Bradley.*

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Terre Haute, Indiana 47801

1321 JURCISIN, GEORGE. Dynamics of the Doman-Delacato creeping-crawling technique for the brain-damaged child. *American Corrective Therapy Journal*, 22(5):161-164, 1968.

The Doman-Delacato patterning method is based on the neurological premise that, even in severely brain-injured children, a portion of the brain cells remain intact and can be activated to assume the functions of dead cells. The program at the Institutes for the Achievement of Human Potential (Philadelphia, Pennsylvania) involves the use of a Developmental Profile to determine neurologic stage and measure progress. Assessment procedures include neurological and medical examinations, and encephalographic recordings. Parents receive instruction in the theories of the Institute and in the treatment program and then initiate a 2-month

home program, which is followed by re-evaluation by the Institute. Although the effectiveness of the Doman-Delacato method is questionable, favorable comments and successful controlled scientific studies affirm the reliability of the patterning techniques. The Doman-Delacato method can be used to screen out problem children in kindergarten and first grade, to organize school and home remedial exercise programs, to re-evaluate progress, and to salvage and re-educate older children who failed to learn basic sensory-motor skills as infants. (4 refs.) - *V.R. Shaffer.*

No address

1322 REYE, CORRIE. A neuro-developmental approach to the treatment of cerebral palsy: A preliminary report. *Australian Paediatric Journal*, 4(1):73-77, 1968.

Of 7 infants with cerebral palsy (CP) who were treated with a neuro-developmental treatment approach (NTA) at less than 12 months of age, 4 did not require additional treatment, 2 progressed but required further treatment, and 1 continued to achieve better function of an affected hand. Treatment periods varied from 5 1/2 to 15 months. NTA emphasizes development of the basic automatic postural reactions associated with normal postural tones required for the acquisition of skilled activities. These reactions are the righting, equilibrium, and adaptive and protective reactions which enable a child progressively to turn on his side, roll over to prone, lift his head, get on to hands and knees, sit, and stand. Although postural patterns are usually present in CP infants, they are frequently inhibited by spasticity and/or abnormal fluctuations. When NTA is instituted prior to the onset of inhibiting influences (before age 1), they can be overcome, and abnormal influences associated with hypertonus can be prevented. The results of NTA with an additional 50 CP infants (CA 1-5 yrs) appeared impressive in comparison with the effects of previous treatment methods; however, a longer treatment period is needed to fully evaluate the extent of final disability. Since this was not a controlled study, the value of early NTA for CPs cannot be substantiated. Nevertheless, these results suggest that "at risk" children should be closely followed so that early treatment can be instituted at the first signs of spasticity. (11 refs.) - *E. Gaer.*

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6 Queen Street
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Australia

1323 DE LORENZO, ELOISA GARCIA ETCHEGOYHEN. Sugerencias para desarrollar un plan secuencial que estimule la percepcion visual. Ejercicios a ejecutar (Suggestions to work out a sequential plan for stimulation of visual perception. Exercises to perform). Montevideo, Uruguay, Instituto Interamericano del Nino, *Publicaciones sobre Retardo Mental*, Number 5, 1968, 5 p. $0.10.

A program for stimulation of visual perception should be preceded by a preliminary series of sequential muscular exercises, which should include creeping, walking, running, leaping, jumping, galloping, folklore dancing, paper and cardboard cutting, object placing following a plan, gluing, drawing, coloring, and everyday activities. The Frostig program, which deals with the position of objects in space, the relative position of objects among themselves, and the perception of invariable properties, is a method which can be used to improve visual perception. (3 refs.) - *G. Pura.*

No address

1324 SHONTZ, FRANKLIN C., & WRIGHT, BEATRICE A. Parent-staff agreement in evaluations of children in rehabilitation. *Rehabilitation Literature*, 29(6):166-168, 1968.

A 13-point, Likert-type scale was used to examine agreement between parents and staff members in a rehabilitation facility on evaluations of physically handicapped children of various diagnoses. Ss were 25 parents or guardians, 6 teachers, and 4 therapists (2 physical, 1 occupational, 1 speech) of 14 children (CA 5-19 yrs; 10 boys, 4 girls). Items for the scales pertained to the children and were obtained separately from parents, teachers, and therapists. Each S was asked to rate each child on each item for 3 time periods: when the child began at the facility; currently; and when the child would be leaving. All Ss rated all items. Items provided by parents tended to be global (such as getting along with others), while teacher and therapist items were tied to directly observable behavior (such as holding a spoon or pencil). Agreement was highest among therapists' items (.37; $p < .05$) and among all items pertaining to the probable status of the child on discharge (.34; $p < .05$). The need for parent-staff conferences was clearly illustrated by the low magnitude of the correlations. (5 refs.) - *J.M. Gardner.*

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1325 EY, H. La "grande arrieration mentale" est un des objets principaux de la science psychiatrique (Severe mental retardation is one of the principle concerns of psychiatry). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 434-438.

Problems in the care of SMR persons should be the concern of society and psychiatrists who should consider it one of their principle tasks. The latter have occupied themselves with the moderately retarded and have left the SMR alone. The pathological, therapeutic, intellectual, social, and neurophysiological aspects of SMR should be thoroughly investigated by psychiatrists; this investigation should receive total support from mental health organizations. (No refs.) - *M.G. Conant.*

1326 COOKE, ROY, LARSSON, HARRY, OLSSON, TORSTEN, VICTORIN, LARS, & KARLBERG, PETTER. A multiple-purpose crib for neonatal intensive care. *Pediatrics*, 42(6):928-933, 1024, 1968.

A multipurpose crib for infants who require intensive medical care was developed with features which include holes for fixation of the extremities, brackets for fixation of respirator tubes, an X-ray plate support, elevation and rotation mechanisms, an oxygen hood, a stop-cock, and an exchange transfusion or syringe tray/table. Infants up to 3 kg can be accommodated. The oxygen hood permits more accurate control of higher concentrations of, and easier weaning from oxygen. The tray/table eliminates the danger of contamination during intra-arterial blood pressure monitoring and facilitates exchange transfusions. The respiratory tube fixation brackets are designed for nasotracheal intubation and tracheostomy connections. Postural drainage and physiotherapy during and after intermittent positive pressure ventilation and Fowler and Trendelenburg positions are afforded by the elevation and rotation mechanisms. X-rays can be taken more easily with built-in film holders which can be easily adjusted to give the desired view. Finally, electrocardiographic, temperature monitoring, and other equipment can be easily incorporated into the crib. (9 refs.) - *E. Gaer.*

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Institute of Technology
Goteborg, Sweden

1327 *Annual Report for 1968.* Copenhagen, Denmark, Eye Clinic for the Mentally Retarded, 1968, 12 p. (Price unknown).

During 1968, 295 patients were seen by an ophthalmologist at the Eye Clinic for the Mentally Retarded (Copenhagen, Denmark). The principal activity is neuro-ophthalmological consultation requested by other physicians; however, because of limited time and a large caseload, only acute problems can be seen without a long (10-12 mos) waiting period. Refraction tests are required for most patients, and special tests of visual acuity have been developed for dysphasic patients. In addition to patient examination, the ophthalmologist is actively engaged in placement of blind children in special schools and in the instruction of teachers and nurses in the training of the blind child. A collaborative program for histological examination of the eyes of MR patients who die in institutions has also been established. (No refs.) - *E.L. Rowan.*

1328 BUTTS, JOHN E. The dental status of mentally retarded children. I. A survey of present practices among dentists in Georgia. *Journal of Public Health Dentistry*, 27(3):154-165, 1967.

A survey of dentists in general practice in Georgia was conducted to identify and evaluate difficulties in providing necessary services for MRs. A random sample of 101 dentists stratified by length of time in practice and geographical location were interviewed to determine present treatment practices and blocks to treatment of MR children. Dentists in practice less than 15 years treated more MR children than those practicing for longer periods. The major variables affecting treatment were the lack of special training and the lack of proper facilities. A large number of dentists stated that they could not provide adequate dental treatment for MR children and had no referral sources. Treatment available was dependent upon the size of the community and length of time out of dental training. Dentists in small communities extended dental care to many more children than those in the largest metropolitan location. In all cases, dentists reported treating more retarded children in the past year than the averages for previous years of practice. Lack of finances was not a major factor. Many dentists reported a need for improvement in services for MR patients. (12 refs.) - *B. Bradley.*

Dental Service Branch
Alaska Native Health Area Office
Box 7-741
Anchorage, Alaska 99501

1329 BUTTS, JOHN E. Dental status of mentally retarded children. II. A survey of the prevalence of certain dental conditions in mentally retarded children of Georgia. *Journal of Public Health Dentistry*, 27(4):195-211, 1967.

Data on dental care for MR children in Georgia to determine the prevalence of oral disease within this group were obtained from grouped "df" information on 3 to 5-year-olds and their dental care needs, age-specific decayed, missing, or filled teeth (DMFT) and Oral Hygiene Index (OHI) for 6 to 20-year-olds, age-specific Russell's Peridontal Index (RPI) for 6 to 20-year-olds, and grouped needs for dental treatment for 6 to 20-year-olds. Dental examinations were administered to 543 institutionalized and 1,343 non-institutionalized MR children. Baseline data on DMFT, OHI, and RPI rates for normal school age children in Georgia were employed for comparison purposes. A lack of proper dental care for MR children existed in Georgia, regardless of degree of retardation. However, this population had a lower incidence of caries than normal children and a higher prevalence of untreated caries especially in higher CA ranges. MRs had a considerable lack of oral hygiene and significantly more periodontal disease. In regard to DMFT, OHI, RPI and percentage of caries-free children, the SMR varied more widely from the normal population than less severely retarded children. The more severe the retardation, the higher the percentage of caries-free children. DMFT rates were lower for SMR children, and SMRs had very poor oral hygiene. TMR children had more dental care than EMR children; however, care for EMRs and TMRs was far below that for normal children. (2 refs.) - *B. Bradley.*

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1330 BUTTS, JOHN E. The dental status of mentally retarded children. III. A survey of blocks to obtaining dental care inherent among parents of retarded children in Georgia. *Journal of Public Health Dentistry*, 28(1):16-19, 1968.

A questionnaire, designed to identify blocks in parents which interfere with obtaining dental care for their MR children in Georgia, was completed by parents or by school personnel. The results indicated that 41.8% of EMRs and 40.5% of TMRs had never received dental care; of those who had received dental care, only 33.4% and 42.5%, respectively, had been to a dentist within the past 18 months. Most of these were readily accepted and treated by a private dentist, had traveled a distance of less than 4 miles, were not charged excessive fees, and required extractions or fillings. Of parents of children who had not been to a dentist for 18 months (27.4%), 55.8% of the parents of EMRs and 74.1% of the parents of TMRs indicated that they considered dental care "very important." Socioeconomic status may be related to dental care for these MR children, since 62.5% of EMR parents and 16.2% of TMR parents had annual incomes below $3,000. The results of this survey clarified the role of the Georgia Department of Public Health in this area and led to the initiation and planning of projects aimed at improving dental care for MR children. (No refs.) - *V.R. Shaffer.*

Dental Services Branch
Alaska Native Health Area Office
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1331 LATIMER, RUTH. Dental care for mentally retarded persons: The profession meets a challenge. *Journal of Public Health Dentistry*, 29(2):127-129, 1969.

A survey of 252 Kentucky, Indiana, and Ohio dentists within the Tri-State Mental Retardation Project area revealed that 204 dentists were serving 1,100 MR patients annually for routine dental care (restorations and extractions). The majority of dentists had special training in the treatment of MR patients and had an interest in a program of continuing education. Most felt that the oral hygiene of MR patients was inferior to that of the mentally normal. As a result of the survey, a directory of private dentists willing to provide services for the MR was published, and continuing education courses are to be established at Children's Hospital. Full utilization of private dental services by MRs should ease the burden on public dental services. (No refs.) - *C. Rowan.*

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1332 KAMEN, SAUL. Dental management of the mentally retarded child. *Bulletin of the New York State Society of Dentistry for Children*, 18(1):10-11, 1967.

Routine dental care of the MR child in the private office or clinic requires a careful evaluation of the child's motor and sensory deficits, emotional behavior, MA, oral status, and the use of established techniques of psychological conditioning, potent premedication to allay anxiety, and compassionate authoritativeness to induce cooperation and provide reassurance. The use of general anesthesia requires post-graduate training and considerable competence, but offers a safe and beneficial method for treating otherwise unmanageable children. (No refs.) - *C. Rowan.*

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1333 STEINBERG, ARNOLD D., & ZIMMERMAN, STUART. The Lincoln dental caries study. I. The incidence of dental caries in persons with various mental disorders. *Journal of the American Dental Association*, 74(5):1002-1007, 1967.

An investigation of the incidence of dental caries in the various etiological categories of MR involved 568 males and females (CA 10-21 yrs) at Lincoln State Hospital for the MR (Illinois). They were classified into high (50 and above) and low (20-49) IQ groups and by etiology of MR. The lower IQ group had a significantly lower ($p < .001$) caries score than the higher IQ group. When classified by prenatal influences, the lower IQ group had a low decay index, a large number of caries-free patients, and a low increment over a one-year period. In familial MRs, the lower the IQ the lower the decay rate and the larger the number of caries free Ss. Between-group differences in oral hygiene were not significant. (29 refs.) - *B. Parker.*

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Chicago, Illinois 60637

1334 *Dental Health For The Special Child: An Optimistic Approach.* Chicago, Illinois, American Society of Dentistry for Children, 1969, 8 p. (Price unknown).

Regular dental care is necessary for the special child; dental diseases in a handicapped child may differ in severity and rapidity of progress from those in other children because of health, drug usage, and lack of oral hygiene. An individual dentist must evaluate his ability to treat the special child, and he should discuss the examination and treatment with the parents. Teeth and gums should be examined and treated every 3 to 4 months. Most special children can be treated with regular treatment methods; however, special arrangements are necessary for those who salivate excessively, those who cannot keep their mouths open nor support themselves in a chair, or those who have excessive fear. The dentist may induce a semi-sleep with analgesia in order to work in his office, or he can cooperate with a physician in a hospital and complete the dental care under general anesthesia. The parent seeking dental care for a special child should contact the family dentist or doctor, county or school nurse, state or city health department dental director, local dental society, children's hospitals, dental schools, or voluntary groups serving the MR. (No refs.) - *M. Plessinger.*

1335 Committee for the Care of the Handicapped Child. Management guide for the child with cerebral palsy. *Orthopaedic and Prosthetic Appliance Journal*, 21:206-211, 1967.

The American Academy of Orthopedic Surgeons has established guidelines which represent minimal essential professional requirements for the provision of coordinated care for the CP child. CP clinics should have adequate examination space and a play area. The clinic director should have special training and experience in the care of neuromuscular disease. The medical team should include a pediatrician, orthopedic surgeon, neurologist, and physician trained in physical medicine as well as consultants in a variety of specialty areas. Physical and occupational therapists are essential members of the group, and a qualified psychologist experienced with brain damaged children should work closely with the team. The social worker should develop a close relationship with the family. The nurse should act as a liaison between team members and medical and paramedical personnel. An orthodontist should be present at all clinics, and the referring physician should receive regular progress reports. Re-evaluation, maintenance of records, follow-up services, and parental counseling should be integral components of a total care program for the CP child. (No refs.) - *B. Parker.*

1336 FISHMAN, SHERWIN R., YOUNG, WESLEY O., HALEY, JOHN B., & SWORD, CHARLES. The status of oral health in cerebral palsy children and their siblings. *Journal of Dentistry for Children*, 34(4):219-227, 1967.

All known CP children between 4 and 18 years of age and their siblings in Idaho were studied to determine prevalence of oral diseases in CPs and to plan a program to provide for dental care. Siblings were used as controls and data were collected on oral health, dental treatment needs, previous dental care, oral habits, parent attitudes towards obtaining dental care for their children, family demographic characteristics, and the medical history of the CP child. The pattern of caries in CP children was not significantly different from that in normal siblings; however, the number of missing teeth in CP children was significantly higher ($p < .05$). This suggests that the 2 groups received different types of treatment. CP children had undergone fewer of the more difficult dental procedures than non-CP children. CP oral hygiene status was slightly poorer than that of non-CPs. Severity of periodontal disease in CPs was significantly greater ($p < .02$) than in non-CPs, and CPs exhibited significantly more ($p < .001$) oral habits such as bruxism, tongue-thrusting, and mouth breathing. (25 refs.) - *B. Parker.*

University of Kentucky
College of Dentistry
Lexington, Kentucky 40506

1337 CARREL, ROBERT. A supplement to an intravenous amnesia technique in pedodontic cases. *Anesthesia Progress*, 15(2):39-40, 1968.

Approximately 29% of 250 children undergoing restorative dentistry after premedication with Nisentil, atropine, Vistaril, and Brevital (a narcotic analgesic, a drying agent, a tranquilizer, and a short-acting barbiturate) required supplemental nitrous oxide to allay apprehension which occurred despite the basic drug regimen. Nitrous oxide was used only as an "inhalation sedative" to provide relaxation and cooperation and never to keep the patient in a surgical plane of anesthesia. The establishment of rapport with the child and the installation of confidence are extremely important to smooth dental procedures: however, problem children who require extensive dental restoration may require premedication and supplemental analgesia to complete necessary procedures. (3 refs.) - *E.L. Rowan.*

9924 York Road
Cockeysville
Maryland 21030

1338 RULE, D.C., WINTER, G.B., GOLDMAN, V., & BROOKES, R.C. Restorative treatment for children under general anaesthesia. *British Dental Journal*, 123(10):480-484, 1967.

Restorative dentistry under general anesthesia is a practical office procedure for dealing with young and frightened children and those with MR or physical handicaps. A treatment plan based on clinical and radiographic evaluation was used by a team of dental surgeons and an anesthetist to complete all work in one sitting. Experience with 225 children (CA 2 to 15 yrs) showed that premedication with a barbiturate, inhalation induction with nitrous oxide and halothane, and proper use of an airway, prop, and pack allowed completion of all restorations, extractions, and minor surgical work. There were no complications to the procedure, and the degree of success, especially with children under 5, demonstrated that dental care is available for all children who cannot tolerate a more conventional approach. (6 refs.) - *E.L. Rowan.*

Institute of Dental Surgery
Eastman Dental Hospital
London, W.C. 1, England

1339 HEINZ, HAROLD W. Dental clinic. *Broadcaster*, 25(3):3, 1969.

Gum disease can be controlled by removal of plaque and calculus or by surgery; however, prevention, through regular brushing and dental examination, is still the best method of eliminating gum disease in MRs. (No refs.) - *J.P. West.*

Dental Services
Beatrice State Home
Beatrice, Nebraska 68310

1340 ISSHIKI, YASUSHIGE. Occlusion of cerebral-palsied children. *Bulletin of Tokyo Dental College*, 9(1):29-40, 1968.

The occlusion of 216 CP patients (CA 6-23 yrs) at a school for handicapped children in Tokyo was studied; the American Academy of Cerebral Palsy classification of cerebral palsy, Angle's classification, and the Japanese Dental Association's physiognomical classification of occlusion were used. Malocclusions were observed approximately 10% more often in the athetoid type of CP than in the spastic type and more often in athetoid high school students and spastic elementary pupils. Variations of maxillary protrusion with school age were not observed, and deep bite was seen only in elementary school pupils. Malocclusions in the athetoid CP were frequently found in quadriplegia; in the spastic CP, they were frequently found in paraplegia. Abrasions of the teeth by bruxism were seen in 23.8% of the athetoid cases. (10 refs.) - *M.G. Conant.*

Department of Orthodontics
Tokyo Dental College
Tokyo
Japan

PROGRAMMATIC ASPECTS—PLANNING AND LEGISLATIVE

1341 NIRJE, BENGT. The outlines of the new Swedish mental retardation law (Translation). *Journal of the Scottish Society for Mentally Handicapped Children*, 3(3):9-13, 1969.

After July 1, 1968, a comprehensive new Swedish law provided a wider range of community services for the MR. This law reflects a new line of thinking about what city councils can legally be required to do and was expected to result in radically improved condition for the MR. Accommodations in private homes, boarding homes, or hostels are provided for MRs who cannot live at home, but who do not need to live in an institution or special hospital. MRs who need special care, but not hospitalization, are provided with care in their homes. Borderline cases who need special care, education and training services in the community, now receive them. Special education is available for MRs in special and public schools, and school attendance from age 7 to 21 years is compulsory for all MRs who can profit from education. The Board of Education and the Board of Health and Social Welfare are responsible for the implementation of the activities and services specified by this law. (No refs.) - *B. Parker.*

No address

1342 Tennessee passes insurance bill for handicapped. *Tennessee Association for Retarded Children & Adults Newsletter*, 15(3):3, 1969.

An insurance bill for the handicapped was passed by the Tennessee Legislature in May, 1969. The Bill provides continued coverage for children: who have reached the limiting age on individual or group hospital and medical expense insurance policies; who are incapable of self-sustaining employment because of MR or physical handicaps; and who are dependent on the policyholder for support and maintenance. The insurer must be supplied with proof of incapacity and dependency within 31 days of the child's attainment of the limiting age. The bill affects all policies issued for delivery more than 120 days after the effective date of the Act. (No refs.) - *J. King.*

1343 LaVOR, MARTIN. The Handicapped Children's Early Education Assistance Act: Public Law 90-538. *Exceptional Children*, 35(5):379-383, 1969.

The Handicapped Children's Early Education Assistance Act (PL 90-538) focuses on the problems of the preschool handicapped child and provides grants to public and private agencies to establish experimental preschool and early education programs. Major purposes of the Act are to develop programs directed toward the whole child, provide parents with counseling and guidance, make communities aware of the problems and potential of handicapped children, insure continuity of education, and provide for the evaluation of the effectiveness of each program. The essential elements of the total program provided for by this Act are research, development, demonstration, training, and implementation. (No refs.) - *V.G. Votano.*

1344 Handicapped Children's Early Education Assistance Act Project Grant Awards. *Programs for the Handicapped*, Newsletter of the U.S. Health, Education, and Welfare Department, Secretary's Committee on Mental Retardation, 69 (8):1-3, 1969.

During fiscal year 1969 one million dollars were awarded in grants to 24 public and nonprofit private programs for handicapped children. The goal of these programs was to demonstrate the success of early school education programs to local and state agencies so that they would improve their programs for preschool handicapped children. The Handicapped Children's Early Education Assistance Act (PL 90-538) will provide special services for MR, hard-of-hearing, deaf, speech-impaired, visually handicapped, emotionally disturbed, crippled, and other health-impaired children. The conditions of more than 50% of these children can be alleviated or cured if medical and special education services are provided during early formative years when response to treatment is greatest. PL 90-538 requires the Commission of Education to thoroughly evaluate the effectiveness of this model early education assistance program. (No refs.) - *B. Parker.*

1345 Education Professions Development Act provides special training for educational personnel working with the handicapped: BEPD program for the handicapped in fiscal year 1969. *Programs for the Handicapped*, Newsletter of the U.S. Health, Education, and Welfare Department, Secretary's Committee on Mental Retardation, 69(5):1-5, 1969.

The United States Office of Education estimates that 237,000 additional special education teachers are needed to accommodate the number of handicapped children now attending regular and special classes. In an effort to remedy the teacher shortage in this area, the Bureau of Educational Personnel Development (BEPD), a federal agency which provides for the training of personnel to work with the handicapped, was established in 1967 under the provision of "The Education Professions Development Act" (PL 90-35). The BEPD awarded 48 grants totaling approximately $7 million to 33 higher education institutions, 8 local school systems, 4 state education agencies, and 3 regional education centers in 27 states and the District of Columbia. A list, by state, of organizations for whom grants were approved is included. (No refs.) - *V.R. Shaffer.*

1346 FORSYTHE, JOHN S., WEINTRAUB, FREDERICK J. The vocational education amendments of 1968, Public Law 90-576. *Exceptional Children*, 35(9):751-754, 1969.

The Vocational Education Amendments of 1968 (PL 90-576) provide special vocational education services for handicapped children who are unable to succeed in the regular vocational education classes. Handicapped children are defined as the MR, hard-of-hearing, deaf, speech-impaired, visually handicapped, emotionally disturbed, or health impaired who require special services. The bill provides for the establishment of a National Advisory Council on Vocational Education and State Advisory Councils. It requires that at least 10% of each state's funds be used exclusively for vocational education for the handicapped. Problem areas of facilities for the handicapped, planning to guarantee the provision of comprehensive services, and planning for comprehensive education for the handicapped were noted and suggestions for activities and procedures which may alleviate them were made. (No refs.) - *B. Parker.*

No address

1347 VENN, GRANT. The vocational education amendments of 1968. *American Education*, 5(1):8-9, 1969.

The 1968 Vocational Education Amendments, which include Title I—Amendments to the Vocational Act of 1963 and Title II—Vocational Education Leadership and Professional Development, are primarily designed to provide training for the academically and socioeconomically disadvantaged, specifically individuals who live in urban ghettos. Appropriations to fulfill the amendments total from $542,100,000 (more than double the $260 million allotment in 1968) for fiscal year 1969 to $910,150,000 for fiscal year 1972. The 1968 amendments should enable educators to provide a wider scope of vocational training for disadvantaged persons who must compete in the fast-moving and fast-changing structure of American economic life. (No refs.) - *V.R. Shaffer.*

No address

1348 U.S. HEALTH, EDUCATION, AND WELFARE DEPARTMENT. *Mental Retardation Construction Program.* Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, 1969, 69 p. (Price unknown).

The 1963 "Mental Retardation Facilities and Mental Health Centers Construction Act" (PL 88-164) provided funds for 12 research centers, 18 university-affiliated facilities, and 242 community facilities. Research centers are built in environs which further research: 9 on university campuses; 2 in hospitals; and 1 on state institution grounds. Research focus varies, and each center cooperates with other agencies to broaden its scope. Facilities affiliated with universities are to educate professional and technical personnel to diagnose and rehabilitate the MR. An interdisciplinary approach provides the staff with a total outlook on MR treatment, and services for the MR are maintained in facilities where new techniques are demonstrated. Programs are interrelated with medical schools, MR institutions, state departments, and community agencies. Community facilities funds are administered at the state level for public programs to diagnose, treat, train, or care for the MR. Community facilities were funded in every state, and when completed, will serve 63,119 MRs. Since 1964, $203 million has been authorized and $137.4 million appropriated, of which $26 million is for research centers, $41.6 million for university-affiliated facilities, $61.5 million for community facilities, and $8.3 million for staffing. Descriptions of specific facilities and centers and their programs are included. (2 refs.) - *M. Plessinger.*

CONTENTS: Research Centers, University-Affiliated Facilities; Community Facilities.

1349 Initial staffing of community mental retardation facilities model cities projects. *Programs for the Handicapped*, Newsletter of the U.S. Health, Education, and Welfare Department, Secretary's Committee on Mental Retardation, 69(11):1-7, 1969.

During fiscal year 1969, Model Cities projects received 95 Federal staffing grants (over $4.2 million) for the initiation of new MR facilities or services. Model Cities will receive funds over a 5-year period to improve all aspects of large, blighted neighborhoods. Thirty-five states, the District of Columbia, and Puerto Rico have MR grants and are divided into 9 areas, each of which has a regional office. Project funds are authorized by the *MR Facilities and Mental Health Centers Construction Act* (PL 88-164, Title I, Part D). (No refs.) - *M. Plessinger.*

1350 JASLOW, R.I. Comprehensive planning to combat mental retardation in the U.S.A. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 414-418.

The main accomplishments of the comprehensive planning programs to combat MR which each state was required to develop 4 years ago, are a tremendous increase in the level of public awareness of MR and the passage of new legislation to provide improved services for the MR. A 6-point program is proposed which stresses the local agency as the focal point for services most needed by MRs. The employment of a logical planning program and the guidelines for appropriate action outlined in the 6-point program should result in a coordinated program to deal with the special problems of the MR. (No refs.) - *M.G. Conant.*

1351 ORZACK, L.H. The handling of chronicity in different national settings. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 534-536.

There is a great variety of approaches to the handling of the chronic MR, even within the United States. In Wisconsin, the "nursing care" model advocates nursing care and concern for personal and emotional growth, while the "social care" model stresses the social growth and development of retarded persons. In Massachusetts, rapidly changing facilities include rehabilitation centers for residential and day trainees. In Massachusetts, residential admissions have decreased in the last 6 years, and every effort is being made to avoid excessive dependence and institutionalization. Opportunities for growth, independence, and development are stressed. The greater acceptance of the retarded in other countries is illustrated by the fact that only 73 of 2.3 million individuals are hospitalized in Puerto Rico. (No refs.) - *M.G. Conant.*

1352 McKENNA, J. A sociological analysis of mental handicap in a national setting. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 918-920.

In 1961, the Irish Minister of Health appointed a Commission of Inquiry on Mental Handicap to examine facilities and services and make recommendations for their improvement. Among the recommendations made were: recommendations for the development of comprehensive maternity and child health facilities for the high-risk group; the establishment of experimental preschool centers in designated areas; the training and employment of psychologists in the country's health services; the establishment of an Institute of Mental Handicap to promote research and the application of scientific knowledge to the problem of mental handicap; the re-orientation of existing facilities to community care; and a survey of all SMR children (CA 6-13 yrs) in Ireland. (No refs.) - *M.G. Conant.*

1353 RYAN, J.P.A. Laying the foundations for a national programme for the mentally handicapped. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 923-925.

The purposes of the Irish Commission of Inquiry on Mental Handicap were: to arrange facilities for the care, education, and training of the MR; to relieve family and social difficulties; and to make the handicapped as productive as possible. The Department of Health was made responsible for the SMR and for all residential facilities, and the Department of Education will be responsible for the education of the moderately and mildly retarded (IQ above 35). A 2-level assessment service was recommended in which teams (school physician, psychiatrist, and social worker) based on the general educational facilities would be responsible for mildly retarded children, and a regional staff (psychiatrist, psychologist, and social worker) would tackle special problems and the SMR. A survey of SMR children (CA 6-13 yrs) in Ireland revealed an incidence of 1.24/1,000. (2 refs.) - *M.G. Conant.*

1354 Education programs for handicapped children in state-operated or supported schools—A progress report. Fiscal year 1968. *Programs for the Handicapped*, Newsletter of the U.S. Health, Education, and Welfare Department, Secretary's Committee on Mental Retardation, 69(6):1-7, 1969.

Public Law 89-313 provides funds for educational programs for children with problems which include MR, emotional disturbances, and visual limitations. Although funds are flexible, quality control requires that each project systematically evaluate the impact of the services provided and that projects be of sufficient size, scope, and quality to assure substantial progress. During 1968, programs funded under this law served 104,000 handicapped children, employed 10,420 staff members, and expended $23 million. Seven hundred and forty agencies and schools participated in projects, and 58% of the funds were spent for programs that served 60,276 MRs. (No refs.) - *V.G. Votano.*

1355 WEBSTER, JOHN D. Planificando en retardo mental (Planning in mental retardation). Montevideo, Uruguay, Instituto Interamericano del Nino, *Publicaciones sobre Retardo Mental*, Number 6, 1968, p. $0.10.

The Federal program on MR in the United States which was effective from 1966 to 1968 provided only personnel and administrative details; however, it was very successful because it received ample backing from concerned agencies and interested citizens. The plan was developed by the Division of Mental Retardation. Fifty-three states and territories took part in this planning and each received $30,000/year. There were some variations in organizational matters and administrative bodies in each state. As a result of this program, more than 35 states created permanent organizations for MR. Planners were represented by physicians, psychologists, social workers, educators, vocational advisers, physiotherapists, local organizers,

and administrators. States that measured levels of incidence and prevalence found values lower than the nationally accepted figure of 3%. This would indicate that a need for more studies to establish reliable figures exists. Planning in MR should be objective, give the MR the same consideration as his fellow citizens, provide treatment and service, preferably in community of origin, and use federal or state funds. (No refs.) - *G. Pura.*

1356 BRYANT, ALLYN G. The Australian scene. *Australian Children Limited*, 3(7):223-226, 1969.

Progress in the care of, and availability of facilities for, the MR in Australia is reported. In Western Australia, funds have been raised for equipment, transportation, and other needs of centers for the handicapped; a new sheltered workshop has been established; and a new training center has been built. Victoria has drawn up a constitution for the handicapped and constructed new craft, remedial, and physical education centers. New South Wales has established 2 new workshops and expanded the facilities of another workshop. In Queensland, an educational clinic, new classrooms, 2 workshops, an intensive therapy area, and 2 training centers are now available. (No refs.) - *V.G. Votano.*

No address

1357 SCHEERENBERGER, RICHARD C. Mental retardation in Illinois: Progress and needs. *Mental Retardation in Illinois*, 2(4):57-63, 1968.

Illinois has made significant progress in respect to MR in the areas of prevention, diagnosis, education, training, vocational training, placement, residential care, socio-recreational programs, and planning and coordination of services. Prevention is handled by the public health departments; a Maternal and Infant Care Project; a Preschool, School, and Youth Care Project; public health nursing; extended prenatal, delivery, and child-care services; a well-child care program; prenatal clinics; and an Accident and Poison Control Prevention Program. Education is provided by day school programs; public school special education classes have recently developed and expanded. The Division of Rehabilitation placed 748 clients in 1967, an increase of 529 over 1963 placements. There has been a significant increase in the number of sheltered workshops, and 1,156 MRs received training in 38 workshops in 1967. Three new residential facilities serve 1,159 MRs, and 2 facilities have made recommended reductions in their populations; however, there has been a substantial increase in the number of MRs on waiting lists (3,272 in 1968). Seven additional residential facilities were authorized by the General Assembly in 1967. A 65-member Advisory Council on MR, the Interdepartmental Committee on MR, the State Advisory Council, and the Zone Advisory Councils are responsible for the planning and coordination of programs for MRs. Recommendations are for continued efforts to expand community awareness and support of local MR programs, increased availability and accessibility of MR programs, and research on the effectiveness of programs. (10 refs.) - *W.Janet.*

Division of Mental Retardation Services
Illinois Department of Mental Health
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1358 SWANK, HAROLD O. The Illinois Department of public aid. *Mental Retardation in Illinois*, 2(4):55-56, 1968.

The Illinois Department of Public Aid has a program for the aged, the blind, dependent children, and MRs. MRs who are over age 18 and have permanent disabilities which substantially impair individual ability to work qualify for "disability assistance." The county department of public aid determines the amount, quality, and availability of supervision for MRs. The Department provides counseling, referral, and instruction services as well as opportunities to improve educational and vocational skills. Other Department functions include the allocation of funds and the administration of the food stamp program. (No refs.) - *V.G. Votano.*

Illinois Department of Public Aid
Springfield
Illinois 62887

1359 *Poverty and Retardation: A Comprehensive Program of Mental Retardation Prevention—Interim Report.* Milwaukee, Wisconsin: Mental Health Planning Committee of Milwaukee County, 1968, 52 p. (Price unknown).

A comprehensive program designed to prevent MR in the poor is needed because the incidence of MR among the poor is proportionately greater than among other socioeconomic levels. Poverty does not simply fail to provide adequate stimulation for learning, it actively endangers physical well-being and increases the likelihood of unsatisfactory mental development. Poor health and nutrition and inadequate knowledge of psychological and physical problems contribute to MR among the poor. Since MR is an organic and environmental problem, comprehensive prevention programs should focus on the health and cultural environmental conditions of women of child-bearing age and on the organic and social development of young children in poverty cultures. Emphasis is placed on a model of MR prevention for adolescent females, and a conceptual model is presented. Needs for education in all areas, vocational training, and direct physical and psychological care are stressed. Increased community and professional awareness are also needed. (31 refs.) - *J.M. Gardner.*

CONTENTS: Poverty Conditions Associated with Mental Retardation; A Comprehensive Mental Retardation Prevention Program for Low Income Communities; Prevention Model—The Adolescent; Recommendations—The Adolescent; Action to Date.

1360 VOCATIONAL REHABILITATION DEPARTMENT. *State DVR Role in Implementing the Federal Program for Employment of Mental Retardates: Final Report.* Cole, Leslie B., & Oswald, Hedwig W. (Social and Rehabilitation Service, Grant RD-1799-G), Washington, D.C., Government of the District of Columbia, 1968, 62 p. (Price unknown).

A project to examine the effects of the role of the State Department of Vocational Rehabilitation in implementing the Federal employment of MRs indicated that vocational rehabilitation counselors can facilitate the placement of MRs in suitable jobs in Federal agencies. Important functions of the rehabilitation counselor were establishing rapport with the employer, making a personal survey of job opportunities, accompanying the client to the initial job interview, providing follow-up services after placement, removing unsatisfactory clients from employment, evaluating MR clients, recertifying clients before job changes were made, clarifying the meaning of a Schedule A appointment with a client, and alloting time for post-closure services. From 1964-1966, 442 individials (IQ range 34-101; mean CA mid 20s), 39 Federal agencies, and 74 professional rehabilitation workers participated in the project. Guidelines promulgated by the Civil Service Commission and the Federal Rehabilitation Office documented certification of MRs. Standards which should be observed by counselors are: know and appreciate the client; present his positive qualities to the employer; extract marketable skills from his experiences; always accompany him on an initial interview; provide follow-up counseling after placement; and clarify the type of appointment to him. (No refs.) - *J.K. Wyatt.*

1361 TALKINGTON, LARRY W., & CHIOVARO, STEPHEN J. An approach to programming for aged MR. *Mental Retardation/MR*, 7(1):29-30, 1969.

One hundred and five elderly MR residents (CA 50-72 yrs) who were characterized by regressive self-care, senility, inability to participate, and inactivity and Senior Citizens from the community participated in a program designed to: demonstrate the adaptability of Senior Citizens; increase social adjustment and decrease regression in aged MRs; and demonstrate the feasibility of this type of program. The 4-phase program for MR Ss progressed from passive activity (embroidery, visiting, writing), to more active recreational programs (handicraft projects), to a formalized program of instruction in semi-independence and living skills, and finally, to a focus on the development of responsibility. Six Senior Citizens were employed on a half-time basis as activity aides. They participated in a one-week training course and then assumed responsibility for program planning and implementation. The program resulted in positive growth, and the MRs moved from a dependent status to a status of responsibility, independence, and life purpose. MR Ss served as models for younger MRs, increased their participation in off ward activities, developed leisure time activities, decreased their medical complaints, and increased volunteer housekeeping services. Twenty-seven MR Ss returned to either personal care homes or nursing homes in their home communities during the final stage of this study. (3 refs.) - *K. Janet.*

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1362 MacKEITH, RONALD. The care of the mentally subnormal. *Proceedings of the Royal Society of Medicine*, 60(11, Part II):1225-1226, 1967.

Increased knowledge of mental deficiency and additional epidemiological data are needed in order to plan for the MR. Prevention should include genetic counseling, education for physicians, and nursery schools for deprived children. Early recognition of treatable disorders may be aided by medical screening examinations of developmental progress which would identify cases of delayed development where comprehensive assessment is indicated. Needs for additional hospital beds are not as important as needs for more small schools with hostels, nursery schools, day nurseries, protected workshops, and research. (2 refs.) - *B. Bradley.*

Guy's Hospital
London, England

1363 HILL, DENIS. Economic and ethical considerations arising from modern care of the defective child and the very old. *Proceedings of the Royal Society of Medicine*, 60(11, Part II):1232-1235, 1967.

The financial and ethical problems involved in the medical treatment of the MR and aged in England are discussed in terms of shortage of personnel and division of services. The physician must assess his treatment policies on the basis of the individual patient despite economic and social problems of providing adequate services. Prognosis for improved treatment in England for the underprivileged is cited as poor. Brief comments followed this overview. (10 refs.) - *B. Bradley.*

Institute of Psychiatry
London, England

1364 MOHAN, BRIJ. Planning and administration of mental health programmes: With particular references to India. *Journal of Rehabilitation in Asia*, 10(1):29-34, 1969.

The goals of mental health planning in India are social action, prevention and treatment of mental illness, promotion and restoration of mental health, and elevation of mental health standards. India's 36 mental hospitals should be re-oriented from custodial to therapeutic goals. The psychiatry practiced in these hospitals loses many of its fundamental principles because the hospitals function as isolated units rather than in cooperation with community facilities and resources. The management and treatment of the MR must be a significant part of the mental health program, and development of suitable colonies will meet the needs of the MR in various communities. In India, there is a decided gap between theory and practice in diagnosis, treatment, and education, and there are very few provisions for the education of the MR. There is a lack of rehabilitation programs and after-care homes for the mentally ill and MR. There is an urgent need for establishment of additional preventive mental health services, expansion and improvement of treatment and training facilities, research, and coordination of voluntary agencies and non-voluntary units. (14 refs.) - *S. Half.*

Lucknow University
Lucknow, India

PROGRAMMATIC ASPECTS—COMMUNITY

1365 KLAPMAN, HOWARD J., MOSS, MURIEL H., BRAND, DONNA L., & BOVERMAN, HAROLD. The search for retardation interveners: A family and community approach through public health nursing. *Community Mental Health Journal*, 4(5):363-367, 1968.

A public health-mental health team consisting of a child psychiatrist and a public health nurse combined the techniques of the 2 fields to provide psychologically-oriented child and family care for MR children and their families. Initially, the program was designed so that public health nurses referred cases of MR to a diagnostic clinic where they were seen by a multi-disciplinary group. Since the number of referrals was below expectation, the program was re-evaluated, and it was concluded, since the community nurses (diagnostic group) and public health nurses have different goals, the design should be revised to promote common goals. Program revision included: an exploration of specific needs and expectations of community nurses; provisions for more frequent contact between nurses and the diagnostic team; consultation between the team and nurses on specific problems; the institution of seminars with the public health-mental health team and nurses; home visits by the diagnostic team; and a change in leadership of the diagnostic group from a clinic physician to a psychiatrist. The final model used centralized specialists and community generalists to attack the problem of MR. (No refs.) - *J. King.*

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1366 McKEOWN, THOMAS. The community's responsibilities to the malformed child. *Proceedings of the Royal Society of Medicine*, 60(11, Part II):1219-1224, 1967.

The responsibilities of the community in regard to the malformed child are described in terms of prevention and treatment. Although prevention is the most attractive solution to the problems presented by serious malformations, even if all preventive measures based on genetic data were applied, their total influence would be small because of the unpredictability of the large majority of malformations. Malformations usually result from accidents associated with fertilization, implantation, and early development. A small number of malformations are recognized during pregnancy, and the most reliable data on high risk malformations are on maternal rubella and the ingestion of certain drugs during pregnancy. The incidence of malformed children is expected to continue at its present rate. In fact, the decline of other causes of early death has increased the relative contribution of congenital malformations. Mortality data, primarily from Birmingham (England), for mongolism, cardiac malformations, spina bifida, and hydrocephalus are discussed. (6 refs.) - *B. Bradley.*

University of Birmingham
Birmingham, England

1367 VELLA, J.P. A mentally handicapped child is born. *Qawwi Qalbek*, Issue 6:15-17, 1968.

Family acceptance and government medical and educational services aid Maltese MRs. Early diagnosis is important so the family can face the reality of the child's situation and obtain clinic help. The Malta Society for the Mentally Handicapped provides practical advice on the care of MRs and on establishing a daily routine. Church and other organizations provide hospitalization and temporary care for the MR at St. Vincent de Paule, the Home for the Mentally Handicapped, and Villa Monsignor Gonzi. (No refs.) - *M. Plessinger.*

No address

1368 COLLINS, DEAN T. General principles of training programs for the mentally retarded. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 13, p. 241-248.

Training programs for the MR are primarily the responsibility of the parent, although the physician should have a complete understanding of the important principles of training since he is generally the first professional to have contact with the parents. It is important to understand that each MR person is a human being first and only incidentally retarded. There is constant need for training program reevaluation in the light of changes in the individual and society. The most simple services possible should be provided, and caution should be exercised in anticipating possible hurdles. Institutionalization is one possibility which can be considered in planning for the child after the assets and liabilities of the child, the resources of the family, and quantity and quality of community programs have been evaluated. (4 refs.) - *J.M. Gardner.*

1369 DUPONT, ANNALISE. Treatment of severely mentally retarded children in their homes. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 883-886.

SMR children living at home receive the same multi-disciplinary treatment available in an institution through the use of home-visiting nurses, who work with doctors, educators, and psychologists to solve problems. Treatment includes counseling parents, helping parents to initiate treatment and examination of the child, establishing necessary services for the child (including occupational therapy), and helping to train mothers to care for the child. A group of 62 SMR children, 60% of whom were under age 8, who lived at home were placed under the supervision of one home-visiting nurse. Parental problems were observed in 48% of the families, 66% of the children were in poor mental and/or physical health, 40% had feeding problems, and 32% had special behavior problems. (8 refs.) - *M.G. Conant.*

1370 TITO DE MORAES, MARIA P. Some observations on the public health nursing home care of the young mentally subnormal child. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 889-894.

Public health nurses in Denmark provide home antenatal care in the absence of public health and home midwifery services and carry out screening tests for early case finding. Follow-up practices include teaching, counseling, and parent education. Nurses who work with mildly retarded young children help nursing education with their deep understanding of the nursing process and suggestions for ways to improve it. Public health nursing work in the health supervision of vulnerable children and their families would benefit greatly from the establishment of a risk register. (11 refs.) - *M. G. Conant.*

1371 INNES, G. The role of the day care centre in a total care programme. In: *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 539-540.

Since the day-care center was opened by the Aberdeen and North-East Association for Mental Health (Scotland) in March 1964, 56 children have been admitted, and 31 are still attending. Of 56 admissions, 50 were low to moderately MR, and 1/3 had moderate to severe physical handicaps. Of 25 who left, 9 went to special schools or junior occupation centers, and 10 were hospitalized. The highest proportion of hospital admissions was in the 5- to 9-year-old age group; none over age 10 years were admitted to the hospital. Factors which were related to hospitalization were the presence of younger siblings and lower socioeconomic group. Severe mental or physical handicaps and support from the family physician were not important attendance factors. (No refs.) - *M.G. Conant.*

1372 BONE, MARGARET, & SPAIN, BERNADETTE. The effect of the provision of community services upon the demand for hospital care. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 337-350.

The interaction between community services and the demand for hospital care in Middlesex (England) was examined to predict future trends. Demand for hospital care declined from 1949 to 1963, although rates and referrals were higher, and there was no evidence of a decline in the percentage of low grade or physically handicapped patients. Decline in hospital care was not associated with increased demands for other forms of residential care and was paralleled by the increased provision of community training services, suggesting a causal relationship between the increased number of training centers and the decreased demand for hospital care. There was no further decline in demand for care by young adults after 1959, due perhaps to the optimum provision of training facilities after this time. (3 refs.) - *M.G. Conant.*

1373 VEERMAN, J. Creation of a community for the severely mentally deficient. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 476-479.

Some fundamental principles for the creation of an adapted living-community for SMR handicapped patients are discussed. The limited structure of the personalities of SMRs requires that all aspects of living should be within easy reach. The community must cope with their elemental sense of living and should have family-replacement characteristics. For maximum social interaction and individual expression, each group should have 8-12 members, with a total community population of 500-1,000. Architectural form should be suitable for children and adults. (3 refs.) - *M.G. Conant.*

1374 VAN LEEUWEN, H. Design of a community for the severely mentally deficient. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 480-495.

A center for SMR children was designed to consider factors in the emotional life of handicapped persons such as their elementary sense of rhythm, nature, social development, and affection and their need for coziness and protection. An experimental pavilion, built as a pilot project, strengthened the basic idea of this project. The center community includes 24 SMR patients and 8 nurses, with room for 16 additional MRs. Architectural design includes space for indoor and outdoor play areas and individual bed areas, which provide privacy. (No refs.) - *M.G. Conant.*

1375 JORGENSEN, I.S. Way of reconstruction of the home milieu of mentally retarded children and of support for preparations promoting the development of these children. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 837-838.

The Danish National Service for the MR provides services for families with an MR child living at home which include contact with the parents, provision of opportunities to discuss problems with home guidance officers, a housewife relief service, a babysitting service, transportation to day-care institutions or home tutorial services, and financial assistance on a graduated scale. The objects of this service are to ease the family financial burden and further the development of the child by creating a harmonious home life. (No refs.) - *M. G. Conant.*

1376 LUNDSTROM, KAREN. Integration into education of facilities for the handicapped as a means of compensating their deprivation. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 839-842.

In Sweden, the old policy of institutionalizing MR children to shield them from normal life has been reexamined, and a new law provides for educational facilities for every child who can profit from any sort of stimulation. Special classes are held in ordinary schools for 40% of the MR children, while specially trained personnel teach institutionalized children and those living at home who cannot attend special classes. The aim is to expose MRs to as much normal life as possible, limit institutionalization periods to a maximum of 5 days at a time, and allow MRs to spend weekends in their homes. This new approach has benefitted MR children and has increased the understanding and knowledge of normal children. (No refs.) - *M. G. Conant.*

1377 MAPLES, CARL, & WACHTEL, ANDREW S. Reflections on the planning process in psychiatric architecture. *Mind Over Matter*, 14(2):4-7, 1969.

To achieve further progress in the field of mental health, the program of facilities must be based on the coordinated efforts of all local mental health interests, and the community must accept the program. The architect should design a facility which fits the varied aspects of the program, yet one which stays within the financial limits of the project. The facility should be built in a short period of time, and the dignity of the patient should be the primary concern. (No refs.) - *V.G. Votano.*

Lindsey and Maples
Knoxville, Tennessee 37900

1378 MURRAY, MARY JEANNETTE. A critical synthesis of community attitudes with specific focus on the acceptance and provisions made for retarded children in the state of Maryland. *Research Abstracts: Cardinal Stritch College*, Issue 9:76-78, 1968.

Responses to a questionnaire sent to the Boards of Education, Health, and Welfare of each county in Maryland and to all public and private institutions offering services to the MR indicated that, in general, the state of Maryland is providing adequate care for its MR citizens. Specific recommendations were for more small community-oriented units, sheltered workshops, recreation facilities, and day-care centers for the MR. (No refs.) - *E.L. Rowan.*

No address

1379 HOLLINGER, CHLOE S., & JONES, REGINALD L. *Community Attitudes Toward Slow Learners and Mental Retardates: What's in A Name?* Columbus, Ohio, Ohio State University Mental Retardation Training Program Technical Report Series 68-4, 23 p. (Price unknown)

Three hypotheses concerning slow learners (SL) were tested through street interviews with 114 men and women from all levels of society in a small community. Hypothesis I was that knowledge, attitude, and acceptance of SLs would be related. Hypothesis II stated that greater contact with SLs would lead to greater acceptance. Hypothesis III was that the term SL would be more accepted than the term MR. Contrary to predictions, knowledge of SLs was not related to attitude or acceptance; however, for males, attitude and acceptance were related ($.49$, $p < .05$). Younger males and females tended to have more favorable attitudes, while knowledge and age were related for males. Evidence for hypothesis II was inconsistent due to the impreciseness of the "contact" with SL measure. For hypothesis III, the term SLs was more accepted than the term MR on 15 of 16 statements (such as, I would accept a —— as a neighbor). In open-ended questioning, MR was frequently associated with emotional disturbance or physical disability while SL was misunderstood as slowness unrelated to mental ability (71% believed SLs could succeed in college). There was greater misunderstanding of SL than MR. The need for public education was clearly demonstrated. (9 refs.) - *J.M. Gardner.*

1380 GIAMMONA, S.T. The University Affiliated Facility Program for the Mentally Retarded in Miami, Florida. In: Richards, B. W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 814-818.

The University of Miami (Florida) has developed plans for a University Affiliated Facility for the MR which will provide specialized services for the diagnosis, treatment, education, training, and care of the MR and serve as a training site for professional personnel. The multidisciplinary program will involve persons from the fields of pediatrics, neurology, psychiatry, psychology, social work, special education, physical education,

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recreation, speech, law, and nursing. The plan includes out-patient facilities for 100 patients/day and for 350-400 new patients/year, and in-patient residential facilities for 50 children. The facility will be an integral part of the University of Miami; it will include 5 divisions which will be coordinated by a scientific director. (No refs.) - *M. G. Conant.*

1381 McGRATH, FRANCES C. Social work program within the University Affiliated Facility Program for the Mentally Retarded in Miami, Florida. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 819-821.

The social work program of the University Affiliated Program for the MR at the University of Miami (Florida) is responsible for activities related to patient care, training, and research. Patient-oriented activities include crisis intervention based on a casework approach, play activity, and family group treatment. The training program will provide an increased number of professional persons prepared to work with the handicapped as well as social workers with leadership ability in the field of MR. Research includes investigation of environmental forces, helping technique, behavior and treatment needs, and social provisions. (No refs.) - *M.G. Conant.*

1382 SHEAR, CAROL S. Medical program within the University Affiliated Program for the Mentally Retarded in Miami, Florida. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 822-825.

The Medical Division of the University Affiliated Program for the MR (Miami, Florida) will provide clinical services for the diagnosis and care of all patients admitted to the center. The Division will also have a training program with emphasis on the biomedical aspects of MR and a center for research related to the prevention and amelioration of MR. Proposed or active programs include: biomedical screening of newborns and other high risk populations for PKU and other inborn errors of metabolism; studies of families with MR members and/or biochemical or cytogenetic abnormalities; screening of pre-school populations to detect total or partial sensory losses; and affiliation with community health programs. Training programs will include physicians, nutrition experts, and physical and occupational therapists. (No refs.) - *M.G. Conant.*

1383 STRUNK, D.L. The role of education in a University Affiliated Facility for the Study of Mental Retardation. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 826-827.

The purposes of the Education Division, an integral part of the multi-disciplinary University of Miami Facility for the Study of MR, are to provide services for MR children, train professional personnel in the education of the MR, and carry out educational research in the area of MR. Services include teaching, educational evaluation, program planning, speech and hearing diagnosis and treatment, school and vocational guidance counseling, and physical education and recreation programs. The Education Division will be an integral part of teacher preparation programs and will also include an Instructional Resources section. (No refs.) - *M.G. Conant.*

1384 ALABAMA. MEDICAL COLLEGE OF ALABAMA. Coordination of a university program in the rehabilitation of the mentally retarded (Final report). Birmingham, Alabama, 1968, 13 p. Mimeographed.

The University of Alabama established a comprehensive program for the rehabilitation of the MR and provided teaching and research facilities for MR for the entire state. Many conferences were held to coordinate existing University programs in special education, speech and hearing, genetic counseling, psychological testing, vocational rehabilitation, and diagnostic and treatment services of many departments within the medical center. Meetings with state, regional, and national officials established the University as a diagnostic and rehabilitation center and as the location of a central registry for the estimated 100,000 MR individuals in Alabama. Training of personnel at undergraduate, graduate, technical, and professional levels should provide interdepartmental cooperation. Construction of MR facility is responsible to a university vice-president MR facility is repsonsible to a University vice-president and his policy advisory committee, which is made up of the deans of the schools involved. As the central area for rehabilitation of the MR, the University will provide diagnostic facilities, personnel training, and quick adaptation of research to improved methods of care. (No refs.) - *E.L. Rowan.*

1385 PITT, D. The multiply-handicapped retarded child. Introduction. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 751-753.

In Australia, some multiply-handicapped children, who do not qualify for financial aid have been helped. Blind children with intellectual levels above those of TMR have profited from deliberately planned activity and training programs. Blind MRs should be separated from sighted MRs, and special units with a specially trained staff should be provided for them. Surgery for the

multiply-handicapped, mostly on congenital malformations, has been successful in many cases. Children do benefit from surgery on correctable deformities. Children with other forms of multiple handicaps (MRs with CP) are cared for in related, but independent, units. (4 refs.) - *M.G. Conant.*

1386 GORDON, LAMAR R., JR., & IVEY, ALLEN E. Reintegrating institutionalized mental retardates in the community: A descriptive survey. *Community Mental Health Journal*, 4(5):395-401, 1968.

Characteristics of and needed community services for institutionalized MRs with potential for reintegration into the community were examined. Twenty-five percent of 142 residents from 4 Wyoming counties were considered to have a potential for community placement (P). These Ss were equally represented by males and females, most were white, and had mild or borderline MR. They had been placed in the institution at later ages than other Ss, had been there for shorter periods of time, and had maintained greater contact with parents and friends. The most common skill of P Ss was domestic training, and most P Ss had more than one asset or skill. The major reasons which prevented P were general immaturity, inadequate home, lack of opportunity, emotional problems, and dependency on the institution. Sheltered workshops and other forms of vocational guidance, personal counseling, and socio-recreational programs are needed in the community. (5 refs.) - *J.M. Gardner.*

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Cheyenne, Wyoming 82001

1387 SIGURDSON, W.E., & EVANGELAKIS, M.G. A five-year report on the services of the child study unit of the Kansas Neurological Institute. *Mental Retardation/MR*, 6(1):22-27, 1968.

The functions and procedures of the Child Study Unit at the Kansas Neurological Institute are divided into pre-evaluation, peri-evaluation, and post-evaluation periods. The IQ, sex, race, socioeconomic status, and behavior level of each patient are evaluated. Pre-evaluation involves application and provision of developmental data by parents, referral by a physician, review by the Unit, and acceptance for evaluation. During the peri-evaluation period, laboratory tests and comprehensive examinations in a variety of areas are obtained at the Institute. The post-evaluation period consists of a final conference between the parents and the evaluation team and recommendations and the location of proper facilities in the community for the child. From July 1961 to June 1966, 864 applications were received from 105 counties in Kansas, 638 children were evaluated, and 31 children were re-evaluated. Of the evaluated children, 226 cases of MR were due to prenatal influence, 118 cases were due to unknown cause with structural reactions manifest, 113 cases had an uncertain etiology with the functional reaction alone manifest, and 35 cases were cultural-familial MR. In addition to MR, factors such as special sense impairment, motor dysfunction, and psychiatric impairment were present. (No refs.) - *J. King.*

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Pomona, California 91766

1388 BARBER, GERALD M. Follow-up study on clients seen by the Kennedy Center Diagnostic Clinic. 1967, 28 p. Mimeographed. (Copies available from Parents and Friends of Mentally Retarded Children of Bridgeport, Connecticut).

A follow-up study of the present activities and service needs of 718 clients seen at the Kennedy Center Diagnostic Clinic (Bridgeport, Connecticut) from July 1, 1954 through July 1, 1966 revealed that 25% were enrolled in special education programs, 16.2% were enrolled in regular educations programs, 10.8% were in institutions, and 3.3% were in an intensive training program. Seven and four tenths percent were employed in workshops, 10.6% had held less than 4 jobs within 2 years, 2.2% had held 4 or more jobs within 2 years, and 14.5% were idle. Eleven percent of the population were PMR or SMR, and 41% were moderately or mildly MR. One hundred and fifty clients were selected for review and follow-up services. A telephone survey was used to obtain data on clients. Service requests were in the major areas of recreation, vocational training, and clinical services. Over 85% of the service requests were for services presently available in the community. Analysis of patterns of referral to the Center revealed that private sources generally referred young, more SMR individuals from higher socioeconomic backgrounds who had not attended school, and public sources referred less MR, older individuals from lower socioeconimic backgrounds who had attended regular classes in public schools. These findings indicate need for: physical therapy services, expanded parent counseling services, therapy services; expanded parent counseling services; an information and referral service; education programs for teachers, employment counselors and social workers; education and health suggestions from members of the medical community; employing MRs among employers and union leaders. (1 ref.) - *J.K. Wyatt.*

1389 HORGAN, B.D. Aid to the mentally retarded: Three years of Apex work. *Australian Children Limited*, 3(5):153-156, 1968.

Apex clubs in Croyden and Maffra (Victoria, Australia), community service organizations for men, initiated a program to benefit MRs as their yearly national project for 1965-66. The program included educating and informing the general public about MR through publicity; providing financial aid to train additional staff for MR centers; improving, expanding, and establishing MR centers; providing transportation for non-institutionalized MRs attending out-service clinics; renovating institutional buildings; and initiating fund-raising campaigns. Because of the enthusiastic cooperation and subsequent success of the program, it was extended for an additional year, after which time its accomplishments were estimated to be worth $500,000. A third-year extension, unique in the Apex Association, was used to complete the project. The Apex Foundation

for Research into Mental Retardation was established at the close of the project. Its purpose is to raise funds to finance research into the causes and prevention of MR and the treatment and training of MRs. (No refs.) - *V.R. Shaffer.*

Apex Foundation for Research into
Mental Retardation Ltd.
178 Queen Street
Melbourne, 3000, Australia

1390 COSTANZO, VINCENTE, & SANCHEZ ROMERO, GUSTAVO. Exposicion de motivos para la creacion de un organismo con caracter privado en pro de ninos insuficientes mentales (Motives in the creation of a private organization for mentally deficient children). *Ninos*, 1(2):79-85, 1968.

A project for the creation of a private foundation for an institutional network for MR children and adults emphasizes the coordination of social efforts to solve the MR problem. A private foundation with legal status, supported by special educational insurance would guarantee continuous service for the MR. The foundation should be comprised of institutions for special education for the pseudo-MR, (perfectly recoverable), workshops for the MR (partially recoverable), and hospitals for the profoundly MR (uneducable).)No refs.) - *G. Pura.*

No address

1391 JOHNSON, GORDON F. Career tryout project: Working with mentally retarded patients in a state hospital setting. *Exceptional Children*, 35(2):163-164, 1968.

A summer work program coordinated by Fresno State College and the Porterville State Hospital (California) provides upper class college and graduate students with exposure to the MR. Students from diverse areas work within their own specialty and obtain experience in other areas as well. The areas represented include psychology, psychiatric social work, rehabilitation therapy, nursing, special eduation, institutional chaplaincy, and hospital administration. On-the-job supervision is provided, and theory, research, and clinical work are combined. Students receive pay, college credit and valuable experience. (No refs.) - *J.M. Gardner.*

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1392 VAN LEEUWEN, G., BLANTON, JOSEPH, & FOGARTY, ROSEMARY. Developing health services for a rural Head Start Program: Problems encountered in establishing a community Head Start health service for small children. *Clinical Pediatrics*, 8(9):531-536, 1969.

A Head Start program in southern Missouri provides health services in which each child is given an initial comprehensive exam and is provided with treatment for any existing problem. All physicians, health personnel, and resources of the community are available. A history for each child is given to the doctor at the first examination, and these records are updated and maintained. The most common disorders found are MR (8%), skin diseases (4.5%), hay fever (3.5%), and psychiatric problems (3%). The experiences of the program demonstrate: that pediatric practioners are better informed on Head Start than most general practitioners; that many Missouri physicians view Head Start as "another form of government sponsored medicine"; that after community physicians assume responsibility for the health services program, they take a more personal interest in individual patients; that parents seem to develop a rapport with doctors on the program; and that new lines of communication are opened between the Head Start director and the medical director. A firm foundation can be established on which to build further health care in such programs. (No refs.) - *B. Parker.*

University of Nebraska Medical Center
Omaha, Nebraska 68105

1393 GALL, JOE. Grandparents adopt 'new' families. *Motive*, 15(3):2-5, 1969.

A "foster grandparent" program at 4 Ohio Institutes for the MR has benefited the institutionalized children and their elderly visitors. "Grandparents" provide the MR youngsters with warm attention on an individual basis and an opportunity to interact meaningfully with adults. The "grandparents" receive personal satisfaction in their work and a modest wage to supplement retirement incomes. The project, which is funded by the Office of Economic Opportunity and the state of Ohio, has been enthusiastically supported by all participants. (No refs.) - *E.L. Rowan.*

No address

1394 SALSINGER, HARRY. Following up on follow through. *American Education*, 4(5):12-16, 1968.

Project Follow Through continues the work begun by Head Start by providing a one-year program in which ghetto children receive aid from a teacher, full-time aide, consulting psychologist, nutritionist, and social worker in a classroom situation. The program differs from a regular kindergarten program in that continuing concern for and prompt attention to problems is provided and learning readiness is emphasized. A parent program includes special lectures, social activities, field trips, and special services. Group therapy is available for disturbed children, and their mother and teachers receive counseling to help them understand and aid the child. (No refs.) - *V.G. Votano.*

Detroit News
Detroit, Michigan 48200

1395 WOOD, TOM. Evansville center is pool of talent. *ICRH Newsletter*, 3(8):1-2, 1969.

The Evansville Rehabilitation Center's philosophy is to search for and help the child or adult who cannot find available services. The Center has a non-building outreach program, provides a pool of talent rather than a facility, and emphasizes extensive rather than intensive services for the handicapped (physically handicapped, MR, culturally disadvantaged, alcoholic), who do not fit into other available programs. Numerous unrelated programs are undertaken, and after they prove to be of value, an attempt is made to sell the community or another organization on their need and practicality. The Center also provides diagnostic services for the MR. (No refs.) - *M.E. McKee.*

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1396 BOGGS, ELIZABETH M. Practical problems in the provision of guardianship for the mentally retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 554-556.

Guardianship is one element of protective provisions for individuals who are too weak to protect themselves. Protective services and guardianship for minor children are relatively easy to establish; however, services for retarded adults entail complex legal and personal problems. Since all retarded persons are not incompetent, declaration of guardianship, with its abridgement of personal freedom, involves complex and cumbersome legal proceedings. The provision of adequate guardianship services for adults is of increasing concern because of the increased life span of the seriously retarded. (No refs.) - *M.G. Conant.*

1397 EGUIA, J.I. Guardianship: The present situation, and prospects of Spanish law. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 557-559.

The Spanish legal system of guardianship is based on the unity of wardship of the person and his property. Guardianship of under-aged MR persons involves seeing that they have their due place in society, while guardianship of adult MR persons involves graduation of guardianship functions with respect to individual incapacity. Elements of the existing tutelary institution and legal processes involved in it should be modified to develop a simplified procedure and an organization for its efficient application. The guardianship mechanism should be more active, and judicial powers should be strengthened. (No refs.) - *M.G. Conant.*

1398 BANK-MIKKELSEN, N.E. Guardianship. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 550-553.

Protective attitudes toward the MR, including the declaration of legal guardianship, contrast with current efforts toward normalization and integration. Since declaration of guardianship is such a serious step, it should be undertaken in only a few instances (for MRs with limited social capacities who live outside an institution). The guardian should be a person, not an organization or an institution, and should be appointed by the court or by an administrative authority. Appointment of a guardian implies that the adult MR will remain a child all his life and denies his rights to be accepted and respected as an adult. (No refs.) - *M.G. Conant.*

1399 STEVENSON, ANNA BACON. The retarded and border crossing regulations. *Deficience Mentale/Mental Retardation*, 18(3): 19-21, 25, 1968.

Border crossing regulations between Canada and the United States vary with the length of stay, reason for crossing, and individual circumstances. The procedure to obtain a waiver for an MR to cross from Canada to the United States as a non-immigrant is to write to the District Director of the United States Department of Justice, Immigration and Naturalization Service. An MR immigrant who is a child or spouse of an alien immigrant may apply for a visa to enter the United States at a United States Consulate in Canada. Non-immigrant entry from the United States into Canada requires a special permit for the MR which may be obtained by presenting all pertinent details (in writing) to the Regional Immigration Office at the point of entry into Canada. There are no provisions for an MR to immigrate to Canada, although it may be possible in the future. (No refs.) - *M. Plessinger.*

149 Alcorn Avenue
Toronto 7, Canada

1400 LATIMER, R. Clergymen: What of the retarded? *Mental Retardation/MR*, 7(1):48-50, 1969.

Questionnaires were sent to clergymen in the tri-state area (Ohio, Kentucky, Indiana) to obtain data for the Religious Education Committee of the Tri-State Project on the number and ages of MRs known to religious institutions and the provisions for religious education. Information from the 25.5% of the questionnaires which were returned indicated that 925 churches knew about and had a concern for 546 MRs. Less than 1/2 of these churches provided religious education for MRs, and 38% of the MRs were in special religious education classes. Two-thirds of the families of MRs with whom

the clergy had counseled had directly asked for help. Clergymen suggested that the churches need to merge their efforts to provide religious education for the MR and expressed concern and constructive interest in a number of areas relating to the provision of helpful services for the MR and their families. As a result of this survey, a workshop on MR, the religious education needs of MRs, and the counseling needs of the families of MRs was held for clergymen. (No refs.) - *J. King.*

1401 MIDDENDORF, M. ANN JOSEPH. Analysis of the facilities available for retardates in the parochial school system in the Northern Kentucky area. *Research Abstracts: Cardinal Stritch College*, Issue 9:70-71, 1968.

The incidence of, facilities for, and attitudes toward, MR Catholic children living in Northern Kentucky were studied. Only 90 of nearly 400 MR children (CA 6-16 yrs; IQ less than 75) were receiving special education services. Lack of facilities was the major reason. Questionnaire data were obtained from a random sample of school principals, pastors, physicians, and a social worker—most of whom recognized a need for more services. Most physicians felt competent to counsel parents of MRs, while pastors did not feel adequately prepared because of their unfamiliarity with the problems of MR. These results point to a clear need for community involvement and leadership in providing services for the retarded. (No refs.) - *J.M. Gardner.*

No address

1402 CONWAY, MARY MADELEVA. A study of the growth and development of Christ Child School for Exceptional Children, St. Paul, Minnesota. *Research Abstracts: Cardinal Stritch College*, Issue 9:58-60, 1968.

The Christ Child School is the only Catholic day school which provides special education for the MR in the Archdiocese of St. Paul and Minneapolis (Minnesota). The school enrolls 170 children, adolescents, and young adults (IQ range 50-80) in a developmental program which extends from preschool training to job placement. The curriculum is adjusted to the needs of the individual and includes training in moral growth, human relations, and civic responsibility. (No refs.) - *E.L. Rowan.*

No address

1403 SHEILA, M. A CCD curriculum for the retarded. *Parent-Educator*, February:4A-7A, 1969.

Specialized religious instruction is provided for MRs, multiply handicapped children, and children with management problems through a curriculum designed by the Confraternity of Christian Doctrine. The program has 4 areas of instruction: scripture, liturgy, doctrine, and witness. When incidents from scripture are presented, the instructor should be aware that MRs are poorly oriented in time and have no conception of references to the extreme past; therefore, Bible stories should be modernized and put into meaningful terms. Similes and analogies should be avoided. Liturgical teachings should be simplified by engaging the children in natural experiences which can lead to an understanding of the supernatural. In teaching doctrine, emphasis should be limited to essential doctrine. Formal rote prayers should be eliminated initially. Witness should evolve from knowing and living Christianity through scripture, liturgy, and doctrine. A suggested list of 25 simplified sequential Christian doctrine concepts designed for preparation for Holy Communion is included. (No refs.) - *V.R. Shaffer.*

St. Coletta School for Exceptional Children
Jefferson, Wisconsin 53549

1404 SIEGEL, ERNEST. Integrating handicapped children and youth into regular religious educational programs. *Religious Education*, 62(4):355-357, 1968.

Religious educators can enhance the understanding and acceptance of the physically and mentally handicapped by their normal peers, increase the handicapped child's repertoire of skills, and improve his self-image. In the regular classroom, the teacher must keep within the class program and devise modifications to aid specific individuals. The school administrator provides in-service training, special instructional materials, and ancillary services such as counseling, therapy, and remedial programs. Handicapped individuals can be profitably integrated into social and recreational programs, and religiously oriented groups provide a non-hostile setting to practice socialization. Normal children also need spiritual and moral guidance to help them develop insight into their attitudes and prejudices toward the handicapped. (No refs.) - *E.L. Rowan.*

Department of Special Education
Hunter College
New York, New York 10021

1405 STAIR, ERNEST R. Religion and the handicapped child. *Religious Education*, 62(4):352-354, 1968.

Parents of a handicapped child should not feel that the child has had no religious training if he is unable to understand the concept of God or read the Bible, for the essence of religious education is a relationship of acceptance and love. Although the child may be unaware of the content of his parents' religious beliefs, the basic way in which religious matters are communicated is through relationships, and parents' examples of care and love for the child provide the best possible instruction in the relationship between the Creator and His creatures. (No refs.) - *E.L. Rowan.*

The Methodist Church
Burnside
Kentucky 42519

PROGRAMMATIC ASPECTS—RESIDENTIAL

1406 KLABER, M. MICHAEL. The retarded and institutions for the retarded—A preliminary research report. In: Sarason, Seymour B., & Doris, John, eds. *Psychological Problems of Mental Deficiency.* Fourth edition. New York, New York, Harper & Row, 1969, Chapter 9, p. 148-185.

A preliminary investigation of the organizational systems of 6 residential institutions for the MR disclosed a relationship between effectiveness, system process, and output. Residents of 4 institutions designated as "effective" were characterized by maximal development of self-sufficiency, adjustment, and intellectual growth. These attributes were least well-developed in the residents of 2 institutions designated as "ineffective." Observations of matched groups of SMRs were used to obtain data on the institutional experiences of residents and the effectiveness of different institutional environments. A Sentence Completion Task was used to assess parent and attendant attitudes. There were substantial differences between "effective" and "ineffective" institutions in attendant ward behavior. Attendants in "effective" institutions devoted a much larger percentage of their time to actual patient care. Attendant behavior appeared to be related to administrative practices, especially to direct supervision. Factors such as employee-patient ratio, salary, institution size, in-service training, and attendant attitudes did not appear to be related to attendant behavior patterns. Parents of children in "effective" and "ineffective" institutions did not differ in their responses to the Sentence Completion Task. However, parents of children in "effective" institutions visited their children more frequently. This factor was independent of the mileage required for travel. (No refs.) - *J.K. Wyatt.*

1407 KUSHLICK, A. The Wessex plan for evaluating the effectiveness of residential care for the severely subnormal. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 650-653.

Two towns (populations of 200,000 each) in the Wessex region (England) will be geographically subdivided into 2 comparable sub-areas of 100,000 population each, and hostels for up to 25 SMR children will be built in a sub-area of each town. After 1-2 months, when baseline measurements have been made on all SMR children and their families, MR children in the experimental areas will be moved from institution or home into hostels. After 4 years, the relative merits of this form of care will be compared with that offered by traditional institutions by evaluating progress made by the children and problems experienced by families. Another experiment proposes a comparison of the effectiveness of care in a traditional hospital, town-based hostels for all grades of MR children, town-based units where 10 MRs are cared for by a pediatrician, and parental home care. (11 refs.) - *M.G. Conant.*

1408 RAYNES, NORMA V., & KING, R.D. The measurement of child management in residential institutions for the retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 637-641.

A scale to measure degree of resident or institution orientation in management practice in the areas of rigidity of routine, block treatment, depersonalization, and social distance was developed. Responses to the 15-item scale were collected from 4 institutions, one of which was a hospital for SMR children. Responses were scored on a 3-point rating system (0-2) with 0 for resident orientation and 2 for institution orientation, and scores were added and compared. This rating scale was then applied to 16 institutions for retarded children. Local hostels had resident-oriented management practices, while state hospitals had institution-oriented practices. (5 refs.) - *M. G. Conant.*

1409 FRANCISCO, C.B. The retarded in an institution. In: Poser, Charles M., ed. *Mental Retardation: Diagnosis and Treatment.* New York, New York, Hoeber Medical Division, Harper & Row, 1969, Chapter 14, p. 249-259.

Although the trend in recent years has been toward an increasing use of community resources for MRs, the institution remains an important part of the overall MR treatment program. The admission of a retarded child to an institution will depend on general institution policies, availability of space, and urgency of the problem. In general, it is best to keep a child in the home as long as possible—certainly in the early childhood years. Certain cases will require more immediate concern (severe congenital abnormalities) while others will not (Down's syndrome). In order for the physician to be able to provide parents with the best advice, he should be aware of the quality of services provided in the community, particularly those of institutions. (3 refs.) - *J.M. Gardner.*

1410 KING, R.D., & RAYNES, NORMA V. Some determinants of patterns of residential care. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 642-649.

Differences in degree of resident or institution orientation in 16 institutions for SMR children cannot be explained by size of facility, size of child-care units, or staff-child ratio. Patterns of care were closely related to the role activities of the head of the unit, as measured by rates of verbal contact with patients. Nursing-trained staff in hospitals had a low rate of verbal contact and institution-oriented care, while child-care-trained staff in local hostels had high rates of verbal contact and resident-oriented care. Nursing-trained staff in hostels had intermediate positions. (3 refs.) - *M.G. Conant.*

1411 LAURENCELLE, PATRICIA. The residential facility: An ecological fragment. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 537-538.

Useful social insights may be gained from observation of non-human life which exists symbiotically with an organized group of humans. These observations are the main concern of the sociologist. During an observation period at a 2,500-bed residential facility for the MR on 200 acres in a suburban area, abundant flocks of scavenger sea gulls, numerous wild pheasants, and domestic cats running wild were observed in the midst of about 3,000 people. These observations suggest: that the administration of the institution is traditional, since the wild life is undisturbed by the patients; that it discharges few of its residents; that it is plagued by endemic and occasionally epidemic outbreaks of communicable illnesses; and that it exists in a state of near social invisibility with respect to the larger community. (No refs.) - *M.G. Conant.*

1412 TIZARD, J. Residential care for the mentally retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 633-636.

Epidemiological studies in a region of southern England show an incidence of 25/100,000 of SMR children who require residential care and of 85-90/100,000 of SMR adults who require institutional care. In large institutions, children suffered from intellectual, emotional, and social impoverishment which intensified already grave handicaps. The current policy of removing all ambulant and trainable MRs from hospital to community care facilities may result in very bleak prospects for remaining SMRs and may prove to be an insuperable problem in terms of hiring nurses. (9 refs.) - *M.G. Conant.*

1413 TOLOSA, MARIA E. The role of the institution in the total care program. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Monttpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 541-548.

Of the 79,000 MRs in Puerto Rico, only about 6,000—or 7% of the total population—are receiving services. The only residential facility for children, the Instituto Psicopedagogico de Puerto Rico, houses 73 residential and 35 day-care patients, has a staff of 50, and is financed by a government grant, fees in a few private cases, contributions, and fund-raising activities. Increased public awareness of MR has led to the establishment of other public and private services for the retarded, but there is still a serious shortage of manpower. (2 refs.) - *M.G. Conant.*

1414 DYBWAD, GUNNAR. Changing patterns of residential care for the mentally retarded: A challenge to architecture. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 575-580.

Programs for the MR require several different types of facilities rather than a traditional general-purpose institution. MRs who do not need hospital care should reside in a simple setting which is designed to further social and vocational rehabilitation. Emphasis should be on creating an environment for individuals, and each patient should have a room or area and a pattern which facilitates group living. The environment should be stimulating and adapted to the needs of each group of MRs. The architect is an important member of the program-planning team because the design of residential facilities is a very important aspect of the program. (No refs.) - *M.G. Conant.*

1415 BLANCHARD, GABRIEL. Projects du Ministere de la Famille et du Bien-Etre Social—1968 (Project of the Department of Family and Social Welfare—1968). *Deficience Mentale/Mental Retardation*, 18(3):16-17, 1968.

The architecture of 16 regional training and residential centers planned for MRs who cannot attend special classes in Quebec (Canada), will allow flexibility of programing for 100 resident and 100 day-school children. Residents will be divided into 10 groups, each of which will have a dormitory, guest room, and activity room. These centers make use of community facilities, emphasize perceptual, physical, and social training, and provide training near the child's home. (No refs.) - *J. King.*

Ministere de la Famillie et du
Bien-Etre Social
6161 Rue St-Denis
Montreal 10, Quebec, Canada

1416 MINNESOTA. PUBLIC WELFARE DEPARTMENT. *Standards for Institutions Serving Individuals Who Are Retarded: Child Welfare Rule Number 7.* St. Paul, Minnesota, 1969, 9 p. (Price unknown).

Standards for public and private facilities for the care and training of the retarded in Minnesota are outlined. Major areas of concern are organization and administration of facilities, programs, staff, plant, grounds, equipment, records and procedures for licensing and refusal of licenses. These standards point out that the institution is responsible for providing meaningful experiences and opportunities for the realization of human potential for its residents, and the community is responsible for the provision of educational, vocational, medical, and counseling programs designed to enable each MR to attain full physical, emotional, and intellectual development. (No refs.) - *J.M. Gardner.*

1417 HEATON-WARD, W. ALAN. The life expectation of mentally subnormal patients in hospital. *British Journal of Psychiatry*, 114(517):1591-1592, 1968.

The average age and average age at death according to IQ levels for patients at Stoke Park Hospital Group (Bristol, England) were presented. Lower level MRs (IQ less than 25) had younger death ages than higher level retardates. The average ages for male and female SMR patients were 29 and 32, respectively, while corresponding ages for the moderately retarded were 39 and 45, and for mildly retarded, 33 and 46. Average ages for mongoloid males and females did not differ significantly within or between IQ levels. The increasing birth rate and improved treatment procedures point to the probability that the numbers of lower level MRs in hospitals will increase. A survey to determine the actual number of additional hospital beds required for MRs is suggested. (No refs.) - *J.M. Gardner.*

Stoke Park Hospital Group
Bristol, England

1418 SHAANAN, A.I. Habilitation and rehabilitation in a facility for the mentally retarded. *Australian Children Limited*, 3(6):169-172, 1968.

Since its opening in 1965 the Suffolk State School (New York) has developed a program to improve the independence and abilities of MR and physically-handicapped patients. Personnel are trained in resident feeding, recreation, hygiene, observation, and response to hostile behavior. Evaluation of patients is done by a Rehabilitation Committee of professionals, who plan each individual's program of activities and periodically re-evaluate progress. Despite shortages of equipment and personnel, gains have been made in self-feeding, toilet-training, and motor skills. A speech development and correction program and training for deaf and blind residents have yet to be established. (1 ref.) - *C. Rowan.*

No address

1419 LENT, JAMES, COTTER, VANCE, & FOSTER, CAROL. A demonstration program for intensive training of institutionalized mentally retarded girls. *Project News* of the Parsons State Hospital and Training Center, 4(4):2-24, 1968.

The demonstration project at Mimosa Cottage at the Parsons State Hospital and Training Center (Kansas) applies behavior modification techniques to a group of 71 moderately MR girls (CA 8 to 21). Ss are grouped homogeneously with respect to age. They are trained in a broad range of self-help, social, educational, and occupational skills. The project revolves around a token economy. In addition to training residents, Mimosa serves as a teaching cottage for institutional personnel. Since the start of the project, 12 Ss have returned to the community, 6 have moved to higher level cottages, and 4 have moved to lower level cottages. (No refs.) - *J.M. Gardner.*

Parsons State Hospital and Training Center
Parsons, Kansas 67357

1420 CHIGIER, E. Severely retarded in Israel benefit from group dynamics. *Rehabilitation Record*, 9(5):13-15, 1968.

Group dynamic principles were used to rehabilitate 21 male institutionalized MRs (CA 15-29 yrs; MA 3-7 yrs) for work in agriculture. The heterogeneous groups include epileptics, mongoloids, spastics, and asthmatics. The program began by creating group unity, and either a buddy approach or concrete examples were used to demonstrate that the group gives strength to its members. After several months a group project work program on the grounds of the institution was initiated. After this, a sheltered working situation outside the institution (picking oranges in a citrus grove) provided Ss with opportunities to learn about traveling, division of work, variation in activities, types of work, and tools, The final step occurred when the group worked productively and received payment on a piece-work basis. The Ss have reached 40% of the productivity of trained agricultural workers in citrus groves. This approach is one of maintenance rather than cure and has been a useful method for setting up work groups outside the institution which allow Ss to achieve their maximum productivity potential. (No refs.) - *J. King.*

No address

1421 STEVENS, HARVEY A., & KURTH, MERLEN G. The Wisconsin ARC plan for coordinating activities of the residential care committee. *Mental Retardation/MR*, 6(1):45-48, 1968.

To facilitate communication in matters pertaining to MR in Wisconsin, separate Aid to Retarded Children (ARC) units in the 3 state residential institutions, a state level steering committee, and community residential care committees were established. The state level committee consists of 3 members plus the superintendents of the 3 residential institutions, the chairmen of the 3 residential ARC units, and the state director of MR services. Membership of the residential care committees consists of a chairman and 8 to 10 members, most of whom are parents of residents. This

reorganization has resulted in more efficient functioning at state and local levels, greater liaison between institution and community, a reduction in duplicated services, easier channeling of information and activities, and more efficient organization of large scale support for various issues. (No refs.) - *J.M. Gardner.*

1422 Warren G. Murray Children's Centre. *Nursing Mirror*, 127(25):30-31, 1968.

The Warren G. Murray Children's Center is a cottage-type institution for MR children (CA 6-20 yrs) which has a staff of 525 (200 non-professionals) and uses methods designed to develop social awareness. The Center consists of a complex of 1-story buildings which include 25-bed units, special facilities for ambulant and/or acutely ill MRs, medical and isolation areas, operating theaters, an X-ray department, a classroom, and a chapel. Outpatient services are also available. Photographs illustrate therapeutic techniques used at the Centre. (No refs.) - *V.R. Shaffer.*

1423 ZALEN, GERALD W. Grandmother buddy system. *Staff*, 5(2):5, 1968.

The grandmother-buddy system is a program in a state hospital for epileptics in which carefully chosen older women patients, who are free from MR, frequent seizures, or gross pathology, meet the epileptic and MR children for 1 hour daily. "Grandmothers" and "grandchildren" develop a sense of responsibility for one another and provide each other with the companionship and affection which are otherwise lacking in their lives. (No refs.) - *V.R. Shaffer.*

Caro State Hospital for Epileptics
Caro, Michigan 48723

1424 ZARZEWSKI, JEFFREY. Soap box derby Southbury style. *Parks and Recreation*, 3(10):37-38, 1968.

A soap box derby has been an annual event at Southbury Training School (Connecticut) for 15 years and has created a healthy competitive spirit and eager anticipation among the 2,000 MRs residing in the cottage-type institution. Although the derby event began with only 4 or 5 cars, more than 50 racers from Southbury and surrounding institutions now compete. Participating MRs (borderline to moderate) may build their own cars or remodel previously driven racers for the 300-yard race. Cars must meet safety specifications, and detailed safety precautions are taken. There are 3 winners for each classification (based on degree of retardation and vehicle wheel type) who are awarded trophies, and all other participants receive prizes. (No refs.) - *V.R. Shaffer.*

Southbury Training School
Southbury, Connecticut 06488

1425 GIBSON, J. Children in adult wards. *British Medical Journal*, 5626(4):324, 1968 (Letter).

To reduce poor care which results from overcrowded and understaffed hospitals, young SMR children are placed on wards with older MR women who provide capable care and training under the supervision of nurses. This practice has resulted in considerable success in that the children have progressed and the older women have been provided with someone to mother. (No refs.) - *J.M. Gardner.*

St. Lawrence Hospital
Caterham, Surrey, England

1426 BAVIN, J.T.R. Children in adult wards. *British Medical Journal*, 4(5630):576-577, 1968. (Letter).

Hospital wards should avoid segregation by age and sex for administrative convenience and provide instead an atmosphere which resembles more closely the social structure of the family; this will provide more stimulation and experience for all groups. Desegregation at Leavesden has proven so beneficial that completely mixed family units are being planned. (1 ref.) - *V.G. Votano.*

Leavesden Hospital
Abbots Langley, England

1427 Gracewood State School and Hospital. Development of a comprehensive cottage life (Terminal report). Gracewood, Georgia, 1969, 128 p. Mimeographed.

This terminal report includes a collection of individual and group behavior modification programs, research reports, reprints of publications, and a summary of a 5-year operant conditioning program for 300 retarded females. Training in basic self-care skills included toilet training, self-dressing, and self-feeding. Work in the areas of token reinforcement, sheltered workshops, and parent involvement are also presented. (65 refs.) - *J.M. Gardner.*

1428 "Little City" opens door to a big world for retarded. *Medical World News*, 9(51):G16-G20, 1968.

Little City (Chicago, Illinois) provides an atmosphere of normalcy in ranch-type cottages that accommodate 100 MRs and uses individualized rehabilitation procedures based on operant conditioning and freedom from outside pressures to help each child achieve maximum potential. MRs are classified along 5 IQ levels based on Stanford-Binet IQ scores (67-83, 50-66, 33-49, 16-32, 0-16), and they participate in a diversified daily schedule. Ss in the upper 3 IQ levels attend classes which begin with health safety and social adjustment and gradually add language, music, arithmetic, prevocational training, and vocational training. Vocational training qualified students to work in plant nurseries, and as handymen, hairdressers, and nurses' aides. The play, feeding, and toilet training of MRs on

levels 4 and 5 are supervised by nurses' aides from levels 1, 2, and 3. The MRs provide a worthwhile community service through their work on a non-automated egg farm and a sheltered workshop at the training school, and they receive rewarding self-satisfaction from their work. The goal of Little City is to accommodate a total of 400 MRs, and immediate plans are for the addition of facilities for 50 to 75 more MR students and 28 blind MRs. (No refs.) - *V.R. Shaffer.*

1429 ATTARD, J. The mentally handicapped at St. Vincent de Paul Hospital. *Qawwi Qalbek.* Issue 6:22-23, 1968.

One hundred and ten young MR patients, many of whom are incontinent and palsied, are confined to St. Vincent de Paul Hospital. Although some of the children attend a neighboring school, they should be sent to institutes or schools where they can receive vocational training. (No refs.) - *V.G. Votano.*

St. Vincent de Paul Hospital
Malta

1430 RANDERAAT, A. VAN BUUL- VAN. Een gezinsverzorgend tehuis voor Zwakzinnigen te Breda (Provision of a home and family life for the mentally retarded in Breda). *Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg,* 5(2):64-68, 1968.

The organization "Het Zorgenkind" (the problem child) in Breda (Netherlands) has purchased a house which is used as a residence for adult MRs whose parents are no longer able to care for them. At present, 12 females (CA 28-50), the majority of whom have jobs in sheltered workshops and return to the home at night, live in residence. The home is administered by 2 nuns and a lay leader. To ensure a homelike atmosphere, many activities (such as excursions) are planned for the whole group. Residents are free to visit their families and receive visits from them at any time. Cost for room and board is paid by residents as they are able, and other funds come from public and private charities and parents. (No refs.) - *S.L. Hamersley.*

Observatiekliniek voor zwakzinnigen
"De Hondsberg"
Oisterwijk, The Netherlands

1431 MASSACHUSETTS. MENTAL HEALTH DEPARTMENT. Half-way houses. Public Information Office News Release, October 24, 1969, 3 p. Mimeographed.

The Massachusetts Department of Mental Health is emphasizing the development of community half-way houses to provide a smooth transition from institution to community living for the MR and mentally ill. Public acceptance is essential for the establishment of community residences (such as half-way houses, group foster homes, rehabilitation centers, co-operative apartments, and residential treatment centers). Although Massachusetts has neither the funds nor staff for the development of a network of half-way houses, there are 50 in operation. The Department of Mental Health has used questionnaires to obtain information about existing half-way houses, and the information will be used to assist community organizations, institutions, and individuals interested in the development of additional half-way homes. There are 37 mental health and retardation area boards comprised of community residents who work cooperatively with the Department of Mental Health to improve mental health and MR services. (No refs.) - *S. Half.*

Massachusetts Department of Mental Health
15 Ashburton Place
Boston, Massachusetts 02108

1432 PARRY, WILFRID H. The new Nottingham Junior Training Centre. *Teaching and Training,* 7(3):74-77, 1969.

The new Nottingham center (England) for SMR children has a large gym as a focal point, and 16 classrooms and an L-shaped dining area are grouped around it. The center includes a special care unit, nursery and infants department, junior department, senior department, housecraft room, and handicrafts room. It can accommodate 192 children (CA 3-16 yrs) and has a full range of facilities for their care and training. The teaching staff cooperates with community welfare officers, and medical superintendents provide consultant services. (No refs.) - *J. King.*

Nottingham Junior Training Centre
Nottingham, England

1433 NEW YORK. MENTAL HYGIENE DEPARTMENT. Hostels for the mentally retarded—community residential facilities: *Guidelines.* Albany, New York, Mental Retardation Division, 1969, 13 p. Mimeographed.

A hostel is a residence which provides care for 30 to 40 MR men and women over 17 years of age. Methods of application and of selecting agencies to operate hostels, the provisions required in contracts for hostels, and requirements for personnel, administrative operation, records, and fees are discussed. The need for a facility, the availability of supportive services, prior experience, and financial responsibility must be demonstrated before applying for a hostel operation contract. Personnel must include a social director, a psychological director, and houseparents. Contractual provisions must comply with state and local laws and contain a non-discrimination statement. (No refs.) - *V.G. Votano.*

1434 Home gives "hope" to many retardates. *ICRH Newsletter,* 3(18):4,1969.

The Home of Hope (Vinita, Oklahoma) is supported by a non-profit corporation backed by 15-year non-interest loans from the local people and was established as an alternative home for MR and multihandicapped persons (above 17 years of age) who were being phased out of Oklahoma state hospitals for the MR. The purposes of the center are to develop a realistic self image, to attain

a portion of human dignity that will govern and give a person's activities significance, and to provide a feeling of security and happiness in a home-like atmosphere. Activities include morning housekeeping tasks and afternoon classes in music, arts and crafts, home-making, physical fitness, and academics for more advanced residents. In-town activities include church, bowling, movies, library, shopping, and a twice weekly trip to the public school for a physical education class with the special education class. (No refs.) - *M. E. McKee.*

1435 Zort L-Iskola (A visit to school). *Qawwi Qalbek*, Issue 6:18-21, 1968.

Children in a government school for the handicapped (Malta) come from all over the island and participate in a program which includes religion, personal hygiene, training in social development, physical education, skill training, art, and domestic science. Well-educated teachers use the latest teaching methods. (No refs.) - *J. King.*

1436 Id-Dar tal-providenza (The retarded are cared for). *Qawwi Qalbek*, Issue 7:20-21, 1968.

The Home for the Handicapped, sponsored by the Malta Catholic Action, is for handicapped children whose families cannot provide individual care and love. The Home makes a medico-social contribution to the country, places the child in an ideal environment, and relieves the stress and strain on parents. (No refs.) *J. King.*

PROGRAMMATIC ASPECTS—RECREATIONAL

1437 AVEDON, E.M. Therapeutic recreation service and mentally retarded adolescents. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 625-627.

A therapeutic recreation service should be available to MR adolescents to enable them to function effectively in unstructured social situations. Because of their limited social experiences and their conceptual impairment, these individuals have little opportunity to develop social skills. Proposed recreation experiences, especially to teach skills that complement adult vocational potential, should be designed so that social learning is explicit and is based on realistic experiences. Such a service can be offered by a special agency or school and teaching should follow general pedagogical practice. (No refs.) - *M.G. Conant.*

1438 BATEMAN, BARBARA. A pilot study of mentally retarded children attending summer day camp. *Mental Retardation/MR*, 6(1): 39-44, 1968.

The effectiveness of day-camp programs on the language development, intelligence, and physical fitness of MR children was examined. Campers were equally divided between EMR and TMR, and 75% were between 9 and 14 years old. Children in camps A and B showed consistent improvement in all areas, while camp D Ss decreased in intellectual and language functioning. After this camping experience with MRs, counselors from camps A, B, and C were more accepting of both mildly and severely retarded Ss, while camp D counselors were less accepting. While counselor attitudes toward sterilization did not change in camps B and C, the percentage of counselors favoring sterilization decreased in camp A and increased in camp D. In general, parents felt that camp experience was very beneficial and would return their children in subsequent summers if possible. (No refs.) - *J.M. Gardner.*

School of Education
University of Oregon
Eugene, Oregon 97403

1439 DROWATZKY, JOHN N. Effects of a two-week residential camp program upon selected skinfold measures, body weight, and physical fitness of trainable mentally retarded children. *American Corrective Therapy Journal*, 22(3):87-91, 1968.

The effects of a 2-week residential camping program for TMRs on various measures of physical fitness were studied. Thirty-five TMR males (CA 8 to 28) participated in at least one hour of moderate physical activity for 14 days. Body weight, skinfold measures, and muscular tests were administered before and after treatment. Skinfold measures were taken at the triceps, mid-auxillary, and juxta-nipple. The Kraus-Weber Test of minimum muscular activity was also used. Mean scores for weight and flabbiness significantly decreased (.01), and physical fitness improved. While only 28% of the Ss passed the total Kraus-Weber battery on the pretest, 41% passed the post-test. (6 refs.) - *J. M. Gardner.*

University of Toledo, Research Laboratories
Toledo, Ohio 43606

1440 KOSKASKA, CHARLES J. Some overall goals for camping stated. *ICRH Newsletter*, 3(20):1, 3, 1969.

The planning of outdoor camping activities to achieve psycho-social growth for the MR may focus on altering the environment, facilitating change, providing a learning experiment, using the imagination prior to planning, and using an interdisciplinary approach. Camping provides a change in the physical surroundings which can enhance learning. In fact, a camp program could modify an institutional environment by bringing the counselors to the institution and simulating the relationships of camping. New interpersonal relationships and experiences with different persons in a new environment can be learned and utilized. MRs can learn to change, receive encouragement for their ability to adapt, and experience success in a new environment. The camp setting can be manipulated to provide specific learning experiences. Teachers should consciously plan what is to be learned and teaching methods to be used. Every situation can be used to aid learning. Careful planning must incorporate the imagination of the teacher to spark exciting plans and innovation during the camping session and use the imagination and creativity of the campers. A team approach to planning can affect interdisciplinary learning. (No refs.) - *M. Plessinger.*

Eastern Michigan University
Ypsilanti, Michigan 48197

1441 LUNAN, BERT. "Little Grassy" offers fun for handicapped campers. *Rehabilitation Record*, 9(1):22-25, 1968.

Little Grassy, a recreational camp affiliated with Southern Illinois University, provides physical and recreational education and activity for mentally and physically handicapped and normal children and adults from institutions and communities, with considerable disregard for inherent limitations. The instructors and counselors encourage the campers in activities such as horseback riding, water sports, vocal music, art instruction, and caring for zoo animals which can be hand fed. In addition, speech correction and development, special education, and physical education programs are provided for the academic needs of handicapped children. New activities and programs are tested periodically for suitability for inclusion in the camp program. The camp attempts to provide social, educational, and recreational experiences which are not otherwise available. (No refs.) - *V. R. Shaffer.*

Southern Illinois University Center
Carbondale, Illinois 62901

1442 CONARD, SUSAN GREGG. Overnight camping highlights day camp. *ICRH Newsletter*, 3(6):1, 3, 1968.

Two overnight primitive camping sessions were included in a day camp program for 40 MR and physically handicapped children (including SMR, emotionally disturbed, blind, deaf, and physically handicapped). The basic program was living in the out-of-doors, and arts and crafts and daily chores were included. Program success was attributed primarily to an intensive orientation program which consisted of 5 days of intensive training, 4 weeks of day camp experience prior to the primitive camping trips, and carefully developed programs suited to the situation and the children. Camping trips lasting a week or more, staffed with well-trained, enthusiastic counselors, and based on meticulously planned programs provide rewarding experiences for handicapped and MR children. (No refs.) - *M.E. McKee.*

Recreation Center for the Handicapped Inc.
San Francisco, California 94100

1443 WOOD, TOM. Lapeer recreation program geared to severely retarded. *ICRH Newsletter*, 3(20):1, 4, 1969.

Recreation and socialization, field trips, and fun for the SMR are stressed at the Lapeer State Home and Training School (Michigan). The recreation program provides year-round fun for 3,347 patients. They visit an amusement park built on the grounds which has a ferris wheel, merry-go-round, miniature train, animal farm, nature trails, bandstand, and a fish-stocked lake with boats. A converted barn is used for roller skating and indoor activities. During the winter, the patients participate in hikes, sledding, and camping. Other special events have included a rodeo, circus, and annual carnival with prizes. The recreation staff plans activities, many of which are carried out by the staffs of the separate residence halls. All but the bedridden take field trips to movies, baseball stadiums, hockey games, museums, and Christmas shopping. The older MRs take care of the younger ones on trips. The bedridden are included in activities which occur on the wards (such as pancake making). All activities are paid for by donations, and the successful program generates greater contributions. (No refs.) - *M. Plessinger.*

No address

1444 ABELS, PAUL. Riding with batman, superman and the green hornet: Experiences in a very special group. *Mental Retardation/MR*, 7(1):37-39, 1969.

A "club," formed by a Mental Development Center, provided a therapeutic group experience for boys (CA 8-11 yrs) with mental development problems. The group was led by a professionally trained social group worker. All 8 boys were educable, some were in regular school classes, and none were brain damaged. The group met with a worker and an assistant on Saturday mornings for 2 months. They took weekly trips to various points of interest. The fantasy life of these children was used to help group members develop independence, maturity, and self-actualization, and help them come to terms with their search for autonomy. The boys were helped to work through some of their difficult interactions with each other and their need for each other and the group helped them to come to terms with themselves and each other. (No refs.) - *B. Parker.*

Case Western Reserve University
School of Applied Social Sciences
Cleveland, Ohio 44106

1445 NESVAN, GERALDINE. A pioneer village. *Pointer*, 12(3):32, 1968.

During the Centennial celebration in Omaha (Nebraska), a school project was initiated in which a pioneer village was reconstructed on a plywood platform built by shop classes. Five classes of students in the individual progress department participated. The project encouraged curiosity and the learning of historical facts and provided a concrete approach to the development of manual skills. (No refs.) - *V.R. Shaffer.*

Psychological Services
Omaha Nebraska Public Schools
Omaha, Nebraska 68100

1446 SOIU, JOHNNY. Step together step. *Challenge* (Newsletter of Project on Recreation and Fitness for the Mentally Retarded), 4(3):5, 1969.

For 4 years a dance instructor has taught social dancing to MR children with the assistance of volunteers from local schools and colleges. The program has included 30 MRs, and at the present time, 5 males and 13 females (7 EMRs, 7 TMRs, and 4 mongoloids) are enrolled. Ss learned a variety of dances and retained their learning so well that they were able to join one of the dancing school's regular groups to present a program at the State Convention of the California Council for Retarded Children. After the 3 month summer recess, MR Ss continued their dancing lessons without lengthy review or difficulty. The program demonstrated that MRs can learn to dance and that social programs should be removed from the school setting. In addition to dancing, students were instructed in the social graces, good grooming, appropriate dress, and acceptable social behavior. Dance ability and motor skill developed to a point where it was difficult to distinguish between MR students and instructors. (No refs.) - *S. Half.*

Debonaire School of Dancing
Bakersfield, California 93300

1447 STURDIVANT, CATHARINE. The little music makers. *Challenge* (Newsletter of Project on Recreation and Fitness for the Mentally Retarded), 4(3):1, 4, 1969.

Fourteen MR boys (CA 9-15 yrs; median MA 4 yrs) learned to identify, play, participate in, and enjoy music from their involvement in a rhythm band, *The Little Music Makers.* The boys learned to count and keep time, became acquainted with and learned to recognize various musical instruments, and used records to learn proper tempo. This program has helped each member of the band to build self-confidence and self-esteem. Some Ss are ready for standard musical instruments. This project facilitated the boys' ability to learn number concepts; decreased their shyness; enhanced coordination, attention span, and concentration; and conditioned freedom of self-expression which may transfer to other learning situations. The band performs for clubs in the community and for groups visiting the institution. (No refs.) - *S. Half.*

Fort Custer State Home
Augusta, Michigan 49015

1448 LEVINE, HARRY. Bowling as an activity for the educationally mentally retarded. *Training School Bulletin*, 65(4):135-137, 1969.

A group of 12 EMR children in the special education class at the El Roble School (Claremont, California), a teacher, and a counselor participated in a one-year bowling program that met approximately twice a month. To avoid a classroom atmosphere, instructions were neither given nor offered until they were requested. At first the children played with little or no thought and tried to use sheer force to play the game; however, most children eventually asked for help so that they could achieve better results, and after instruction was received, their average scores rose. The children had trouble concentrating enough to take their turns in order, and this problem did not improve during the course of the program. Two children learned to keep score, and one student became a regular member of a bowling club. The program appeared to be a satisfactory recreation experience for the students and they evidenced some increase in physical efficiency and coordination. (No refs.) - *J. King.*

El Roble Intermediate School
Claremont, California 91711

1449 AZZOPARDI, S. Hdejn Il-Bar U Fl-Arja Tal-Kampanja (Handicapped and mentally retarded on outings). *Qawwi Qalbek*, Issue 7:18-19, 1968.

The Malta Society for the Mentally Handicapped has organized as many outings as possible for MRs in private homes, hospitals, and special homes. A Sunshine Coach is used for some wheelchair cases, and a van is used to transport hospitalized MR children and adults (No refs.) - *J.King.*

No address

1450 HEINZELMAN, WILMA C. *4-H Opens the Door for the Mentally Retarded.* Cooperative Extension Service, Oregon State University, 1967, 15 p. (Price unknown).

MRs who participate in the 4-H project at Oregon State University learn practical skills, enjoy group participation, and find a place in the community. Adult volunteer leaders use a "learn by doing" approach to education and provide EMRs and TMRs (CA 9-56 yrs) with opportunities for intellectual, social, spiritual, and physical growth. As MRs learn mental and manual skills, they develop basic attitudes. Activities of the 4-H project include field trips, creative arts, and camping. A link with the community is provided through music, food service, vocational rehabilitation, a junior leadership program, and community service projects. A 4-H education program should include a basic activity and demonstrations, and leaders should provide encouragement, minimal assistance, emphasis on the development of personal habits, and patience and be sure that the task is completed and the member learns to cooperate. (5 refs.) - *V.G. Votano.*

1451 HEINZELMAN, WILMA C. *4-H Reaches Out to Youth with Special Needs.* Corvallis, Oregon, Cooperative Extension Service, Oregon State University, 1968, 20 p. (Price unknown).

To encourage disadvantaged youth to join 4-H clubs, the leader must arrange activities, be able to observe and understand unsocial behavior, express friendliness and respect, provide encouragement, teach basic skills, and help the children to develop confidence. Disadvantaged youth can be located by contacting public schools, ministers, health and welfare workers, juvenile officers, and police. The parents should cooperate with the leaders, and the first meeting of a 4-H group should be lively and provide a great deal of varied activity. Since immediate satisfaction and adequate equipment are essential to program success, 4-H programs should start with a simple activity. Behavior problems can be caused by an unstable family, inadequate home, lack of education, or low income, and leaders should make an effort to understand the special needs of all the young people involved in the program. (No refs.) - *V.G. Votano.*

1452 MENOLASCINO, FRANK J. Parents of the mentally retarded: An operational approach to diagnosis and management. *Journal of the American Academy of Child Psychiatry*, 7(4):589-602, 1968.

If an MR child is to develop maximally, then realistic planning must be carried on within the family, and professional advice given only in times of crisis. Three reaction patterns commonly occur, and each requires specific treatment. The novelty shock crisis occurs when the diagnosis of MR is presented to unsuspecting parents. They require supportive counseling, information about the condition and its prognosis, and encouragement in unhurried "life planning" for their child. A crisis of personal values results from destruction of overdetermined parental expectations and responds best to a clarification of existential values or psychotherapeutic intervention. Reality crises are beyond parental control and require that the professional understand the parents' real inability to cope and be able to refer them to appropriate community resources. If parents are counseled in the context of crisis intervention, they are better able to understand their child and obtain satisfaction in his care, the child experiences parental acceptance and better management, and society is spared the problems of family dissolution and institutionalization. (20 refs.) - *E.L. Rowan.*

University of Nebraska College of Medicine
Omaha, Nebraska 68105

1453 QUAST, WENTWORTH. The role of interpretive parent interview in diagnoses of children. In: Khanna, J.L., ed. *Brain Damage and Mental Retardation: A Psychological Evaluation.* Springfield, Illinois, Charles C. Thomas, 1968, Chapter 7, p. 144-164.

Professionals who diagnose, treat, and recommend treatment for brain-damaged and/or MR children should also provide counseling for parents. This counseling should focus on increasing the parents' intellectual and emotional agreement on values pertaining to the handicapped child and the family. Research studies indicate that parents of handicapped children evidence significantly more emotional disturbance and have a higher divorce rate than adults from the general population. Parents of a handicapped child clearly require counseling when they indicate that emotional psychodynamic factors in family organization have not been resolved. They are confused by a variety of management opinions and suggestions, and they cannot agree on severity of handicap or goals. They do not know where to obtain advice about simple day-to-day management problems. Counselors should be aware of the possible effect of a handicapped child on the adjustment of older normal siblings. In order to minimize the development of a mother-child interdependency, counseling efforts should be directed toward maximizing the role and responsibilities of the father. (11 refs.) - *J.K. Wyatt.*

1454 LIBERTHSON, EVA. Helping families live with and for the mentally retarded child. *Journal of Rehabilitation*, 34(6):24-26, 1968.

Parents with an MR child usually experience guilt which not only impairs the development of the MR child, but also that of any normal siblings. Parents often exert extreme physical and mental pressure on a child in an effort to remake him. Siblings become resentful and ashamed if they are burdened by the MR. Parents must understand the MR child's limits before they can help him. The decision to institutionalize an MR child should be agreed upon by both parents, and the amount of tension in the family is usually the final determinant. (No refs.) - *V.G. Votano.*

New York State University
Buffalo
New York 14200

1455 VLIEGENTHART, W.E., & DUNK, MARIANNE G.C. Die problematik von Eltern geistig behinderter Kinder (Some problem areas of parents with mentally retarded children). *Heilpadagogische Forschung*, 1(3):353-380, 1968.

While the literature about the MR child in relation to his parents is varied and has many different approaches, several themes recur and bear condensation into a single bibliographic article. Among these problems are: social pressure and condemnation of parents and child; the MR child and the marriage relationship; the MR child and his siblings; and the influence of degree of abnormality. Social pressure and condemnation often hinder the acceptance of the child by his parents. Influence on marital relations varies; sometimes a couple will pull together; however, the opposite is true in many cases. Siblings of the MR child often suffer under the same ridicule from other children and adults as the child himself. Siblings may also suffer from anxiety reactions if the MR child is placed in a home. They see this as a rejection of the child by their parents, and fear that the same thing may happen to them. The parents' acceptance of their child often depends on degree of abnormality; although the SMR child will never fulfill the expectations of his parents, the EMR child will be able to fulfill them to at least a small degree. The nature of true acceptance has several different definitions; however, all focus on acceptance of the child as he is and on willingness to work from there. Parents who can fulfill this role should be respected. (41 refs.) - *S.L. Hamersley.*

Paedagogisch Institut aan de Rijksuniversiteit
te Utrecht
Trans 14
Utrecht, The Netherlands

1456 HARPER, MAX A. More with sorrow than with shame. *The Clearing House Journal of Experimental Education, Research and News From Schools for Sub-Normal Children*, 9:5-21, 1968.

The problems of families with a mentally handicapped child including parental guilt, marital discord, community responsibility, and vocational and social training to insure future security are discussed. Although parents tend to be emotionally traumatized upon discovering that their child is MR, most appreciate a straightforward diagnosis; some choose not to accept the facts and will seek patronizing support of their disbelief. Parent feelings of direct responsibility for the child's MR should be eliminated by competent counseling. In addition to unwarranted guilt feelings, parents are sometimes obsessionally concerned over the future security of their child; this concern can be eased with proper knowledge of available community occupational centers. Hyperactivity and speech deficiency present special problems to parents with an MR child at home, and further stress develops when each concern and problem created by the child results in marital discord. Although a home environment is more beneficial to a mentally handicapped child than institutionalization, the problems encountered should be carefully studied from the point of view of the child's welfare and that of the family. (No refs.) - *V.R. Shaffer.*

University of Queensland
Queensland, Australia

1457 PULLICINO, J. Bzonnijiet ghas-sahha mentali fit-tfal (Parent reaction toward their mentally retarded child). *Qawwi Qalbek*, Issue 6:7-10, 1968.

Personality and experience are important factors in parents' reactions toward their MR children; however, most parents react with overprotection or rejection. The MR child, therefore, has 2 problem areas with which he must learn to cope: his own limited capabilities and his parents' attitudes. MR children have the same basic needs as normal children, and these needs must be met if they are to develop fully. They must have love, but not overprotection. They must have discipline and consistency in handling; and they must be provided with opportunities for self-expression and play. (No refs.) - *M.D. Nutt.*

No address

1458 GERSTENBERG, MIRIAM THOMAS. A study of the marital status and attitudes of parents of retarded children in a private residential school in Maryland. *Research Abstracts: Cardinal Stritch College*, Issue 9:61-62, 1968.

A 26-item questionnaire was given to 175 couples whose children were enrolled in private residential schools for retarded children; in most cases the diagnosis of MR had been made by a physician. Husbands found it more difficult to accept the diagnosis than wives, although more wives than husbands had guilt feelings at the time of diagnosis. Few problems were noted in explaining the child's condition, in applying discipline, or in sibling relationships. The majority of parents lived together, and few were reluctant to have more children. Most parents were not entirely realistic in planning for their children's future. The retarded child can have a positive effect on the family, and he can be accepted by relatives, friends, and neighbors. (No refs.) - *J.M. Gardner.*

No Address.

1459 BENNIE, E.H., & SCLARE, A.B. The battered child syndrome. *American Journal of Psychiatry*, 125(7):147-151, 1969.

Evaluation of 10 parents who had beaten or killed their children revealed a pattern of repeated deliberate assault by a person who had had a previous emotional catastrophe in which a child played a crucial role and who was now experiencing marital friction or character instability. All 3 men and 2 of the 7 women studied were MR. Frustration and aggression toward the spouse were displaced toward the child, and while most patients readily acknowledged their crimes, they claimed inadequacy and an inability to prevent them. Five of the women had recently seen a physician about their own or the child's problem, and assault could conceivably have been prevented had the physician been alert to the mother's pleas or suspicious of the manner in which the trauma conflicted with the story of the injury. Further investigation or referral to appropriate authorities would seem justified in such cases. (4 refs.) - *E.L. Rowan.*

Eastern District Hospital
253 Duke Street
Glasgow, E 1, Scotland

1460 PERSKY, MURRAY. A long-term evaluation and treatment of a mentally retarded child and his family. In: Szurek, S.A., & Berlin, I.N., eds. *Psychosomatic Disorders and Mental Retardation in Children.* (Langley Porter Child Psychiatry Series, Volume 3.) Palo Alto, California, Science and Behavior Books, 1968, p. 283-298.

A longitudinal study of an 11-year-old MR boy and his parents demonstrated that the emotional feelings of the parents and the boy's psychological problems and physical state were interrelated factors in his progress in treatment. The child was relatively normal until the age of 2 years, when he suffered a 25-foot fall which fractured his skull. Afterwards, he became hyperactive, decreased in self-help skills, regressed in speech, and developed seizures. During treatment, the boy improved, his physical awkwardness improved, and his EEG became more normal. Important steps in treatment were the establishment of personal contacts with people and the reduction of conflict between the parents. (8 refs.) - *J.M. Gardner.*

1461 ERICKSON, MARILYN T. MMPI profiles of parents of young retarded children. *American Journal of Mental Deficiency*, 73(5):728-732, 1969.

The Minnesota Multiphasic Personality Inventory (MMPI) was administered to a group of parents whose children had been referred to a Developmental Evaluation Clinic and later diagnosed as MR. Most of the MMPI clinical scales were elevated for both mothers and fathers. The profile types were similar to those found for parents of emotionally disturbed children. The stress of living with a deviant child was suggested as one of several possible contributing factors to the MMPI scale elevations. (13 refs.) - *Journal abstract.*

University of North Carolina
School of Medicine
Chapel Hill, North Carolina 27514

1462 KOGAN, KATE L., WIMBERGER, HERBERT C., & BOBBITT, RUTH A. Analysis of mother-child interaction in young mental retardates. *Child Development*, 40(3):799-812, 1969.

Employing newly developed observational techniques, the authors recorded the nonverbal and verbal interactions between 6 young MRs and their mothers for 36 minutes on each of 2 occasions. Behaviors were analyzed according to their relative status, affections, and involvement components during each 4-second time interval, and patterns were derived by means of contingency analysis. The patterns common to the MR sample were compared with those derived from a comparison sample of 10 non-retarded 4- and 5-year-olds and their mothers. The patterns of a single retardate dyad were compared with the patterns characteristic of the group to illustrate the effectiveness of the method in highlighting the unique qualities of specific pairs. The study is intended to emphasize methodology primarily and data about the subjects only secondarily. (14 refs.) - *Journal abstract.*

University of Washington
School of Medicine
Seattle
Washington 98105

1463 KAPLAN, FRANCES. Siblings of the retarded. In: Sarason, Seymour B., & Doris, John. *Psychological Problems of Mental Deficiency.* Fourth edition. New York, New York, Harper & Row, 1969, Chapter 10, p. 186-208.

Programs of preventive intervention in MR should provide help for the families of MR children which enables them to cope in ways that enhance, or at least do not hinder, individual growth and development. Preliminary research on the siblings of MRs suggests that unless issues (such as, the way the family talks about MR, the problems of the MR child, how parents deal with their aggression toward an MR child, how parents teach normal siblings to deal with their aggression toward an MR child, how the family handles community relationships with the MR child, and how parents help normal children to understand the issues involved in MR) are dealt with when the MR is first discovered, irreversible damage may result. Clinical observations of 15 siblings of MRs were obtained either from individual psychotherapy sessions, or from discussion group proceedings. The findings imply that MR is an event that involves the total family and parts of the larger community. The core issue in the effects of a MR child on the family appears to be in the way in which the family responds to severe stress, especially when it occurs without warning. (No refs.) - *J.K. Wyatt.*

1464 KAPLAN, FRANCES, & FOX, ELIZABETH. Siblings of the retardate: An adolescent group experience. *Community Mental Health Journal*, 4(6):499-508, 1968.

Siblings of MR children in different age groups and situations often have special problems. A therapeutic program was designed in which normal siblings of MRs met regularly with 2 psychologists in order to prevent psychiatric problems from developing. Active recruitment of clients was necessary, and contact with families of group members was maintained. Recruitment was accomplished through phone calls and home visits; provision of transportation and considerable encouragement were also necessary in order to counteract lack of motivation and involve those who otherwise would not respond. Issues discussed included: how normal siblings differ from, or are the same as their retarded sibs; how well the MR sib understood his problem; and discipline. All group members felt strongly about the relationship between their families and the community. They developed a real capacity to express themselves and a strong attachment to the group. This type of limited group can be an important means of elucidating the problems of children with exceptional siblings and the effects of any one sibling on another. (10 refs.) - *B. Parker.*

Yale University—Department of Psychology
New Haven, Connecticut 06520

1465 SCHELL, ROBERT E., & ADAMS, WILLIAM P. Training parents of a young child with profound behavior deficits to be teacher-therapists. *Journal of Special Education*, 2(4):439-454, 1968.

Long-term effectiveness of behavior modification techniques with MR and autistic children outside institutions is often dependent on training parents to be behavioral engineers. The parents of an autistic child

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were instructed in the methods necessary to institute desirable and eliminate undesirable behaviors. A psychologist, who served primarily as a consultant, met weekly with parents to discuss the results of the previous week and to offer suggestions. Parent training began with prepared reading material. Behavioral deficits were determined. Initially, arm-tugging behavior was extinguished. Other undesirable behaviors eliminated were tantrums and repetitious behavior. Desirable preschool behaviors such as puzzle-solving and self-help skills were encouraged with positive reinforcement techniques. The child's ability to generalize to other areas and his increased responsiveness to social interaction were positive side-effects. (24 refs.) - *J.M. Gardner.*

No address

1466 BARNARD, KATHRYN. Teaching the retarded child is a family affair. *American Journal of Nursing*, 68(2):305-311, 1968.

An MR child (CA 19 mos; MA 6 mos) was taught prewalking skills and self-feeding. Each task was broken down into basic components and each component was taught to the child's parents who in turn taught him. The operant theory of learning was employed and through "shaping" and "fading" techniques, this hypotonic child, who had displayed little interest in his environment, was greatly improved. The child was initially observed in nine 20-minute-long baseline sessions in order to establish his functional level. Baseline data showed that, although the child had no spoonfeeding behavior and little opportunity to learn such behavior, he had the essential skills. Fading techniques in which the mother initially participates in the desired result and gradually "fades out" her action as the child achieves more skill were employed. When the feeding program was well established, the child was fitted with glasses to correct severe myopia and an immediate difference was noted in his recognition of people. After 2 months, he had become accustomed to the new visual stimuli and his interest in surrounding toys greatly increased. At that time, the child began exercises designed to develop his equilibrium and prewalking skills. (3 refs.) - *B. Parker.*

1467 Il-genituri, il-pubbliku u ahna (To the public and the members of the Society). *Qawwi Qalbek*, Issue 7:16-17, 1968.

Parents of MR children are urged to join the Society for the Mentally Handicapped (Malta) or if they are already members, to take advantage of its services, such as day-care centers. The Society's purpose is to aid parents of MRs, especially in times of family crises; parental cooperation with the Society is essential. (No refs.) - *M.D. Nutt.*

1468 SCHERER, FELICITAS. Elternbeirate an Sonderschulen fur geistig behinderte Kinder (Parent advisory committees at schools for the mentally retarded). *Lebenshilfe*, 7(1): 31-33, 1968.

Since the education of the MR must be a total program at home and in school, close interaction between parents and school personnel in such bodies as a parents' advisory committee is important. This committee has 2 basic functions: policy formulation and an advisory role in decisions concerning changes to be made in curriculum or physical plant. In no case, however, should the committee's conclusions overrule those of the school administration. Meetings should be held at least quarterly, with special sessions called as necessary. Although the office is honorary, parents who serve on this committee should be willing to sacrifice much time and effort to ensure smooth functioning. (1 ref.) - *S.L. Hamersley.*

No address

PERSONNEL

1469 SAPER, BERNARD. What to tell the architect. *Community Mental Health Journal*, 4(1):17-25, 1968.

Seven architectural firms (recently involved in the designing of new mental health facilities) were surveyed to determine the information needed by the architect before he begins discussions with the administrator of any proposed new mental health building. Each firm was asked to define a functional program, and this was generally defined as a written statement of the philosophy, goals, activities, types of patients, personnel, and necessary equipment for the mental health facility. It could also include a record of expectations and aspirations for the facility and a preliminary budget of expected program and construction costs. Architects differed in the type and amount of information they prefer in a functional program, but all agreed that it is essential that a description of space needs and relationships be outlined in great detail. There was considerable concern about programs that failed to identify probable growth and change. (No refs.) - *B. Parker.*

Albany Medical Center
Albany, New York 12208

1470 MORDOCK, JOHN B., & SELVAGGIO, VITO J. The childcare worker and sensory training. *Forum*, 5(1):25-31, 1969.

Since child-care workers encounter TMRs or EMRs in an everyday living situation, they have great opportunities to teach basic skills. Generally, the TMR and EMR cannot deal with abstractions nor symbols; they cannot concentrate very long, follow many directions, nor express needs, and they lag in emotional and physical development and have little academic interest. Goals for TMRs include the development of self-help skills, coordination, communication, vocabulary, good work habits, and adjustment to change. EMRs require similar training with more vocational and academic emphasis. This training is more effective in real situations with daily repetition than in the classroom. Concept formation, arithmetic, language arts, and social competencies can be taught by the child-care worker in the MR's environment. TMRs can be taught to play together and overcome their inability to relate to the abstractions around them. Time can be taught by relating it to the child's day. If a special event is acted out in advance, the MR will know what to expect and not lose control in a new situation. Acting out can prepare the MR for a change or show him desired social behavior. Since television often shows unrealistic behavior which is impossible to understand, television viewing should be restricted. (3 refs.) - *M. Plessinger.*

1471 Opleiding tot assistente bij de motorische ontwikkeling in de zwakzinnigenzorg (Training of assistants for development of motor functions in the care of the mentally retarded). *Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg*, 5(4):154-156, 1968.

A program was designed to meet the special problems and needs of personnel who work with physically handicapped MRs. Participants in the course were required to have 3 years of high school, to be at least 17 years old, and to be in good physical and mental health. Subjects studied included anatomy, physiology, psychology, sociology, orthopedics, occupational therapy, and gymnastics. The course lasted for 2 years, with special concentration on practical aspects in the second year. Upon completion of the course, the trainees were placed in one of the homes for MR children with physical handicaps. (No refs.) - *S.L. Hamersley.*

No address

1472 LECKIE, JUDITH. Youth volunteer movement in Canada. *Deficience Mentale/Mental Retardation*, 18(3):11-15, 1968.

The growing number of youth volunteers directly serving the MR is an important development in volunteer service in Canada and the United States. These volunteers are students—mostly teenagers—working as individuals or in groups with all ages of MRs. Help is supplied for fund-raising campaigns, recreation programs, public education, and home-care services. Youth are prompted into service by a concern for others. The MR feel accepted and respected by the young volunteer. Many volunteers form local groups to work with established associations. Problems are anticipated as the youth volunteer movement continues to grow; however, careful planning and good communication can smooth differences between the youths' independence and adults' conservativeness. Proper organization and education can take advantage of younger vitality and older skills. (No refs.) - *M. Plessinger.*

No address

1473 REED, SHELDON C. Human factors in genetic counseling. In: National Foundation-March of Dimes. *Human Genetics.* (Birth Defects Original Article Series, Volume 4, Number 6.) New York, New York, 1968, p. 105-109.

Although it would be helpful in many cases if a genetic counselor were also a physician, it is more important that he have a working knowledge of human genetics. The successful genetic counselor possesses the human characteristics of sympathy, compassion, willingness to work hard for a client, generosity of time, willingness to listen to a client, and a sense of humor which dispels anxiety. Clients who seek genetic counseling are generally above average in both education and income, and they desire to determine the risk of having an abnormal child. If the population growth of the world is controlled in the future by limiting family size, genetic counseling will become an increasingly significant means of assuring each couple that they will have normal children. (2 refs.) - *J.K. Wyatt.*

1474 MURRAY, M. Nursing and the mentally subnormal. *Nursing Mirror*, 127(22):35-38, 1968.

Intensive therapy in an experimental group (10 MRs, 2 male and 2 female staff members, with a male nurse supervisor and a psychologist, social worker, and 2 physicians as advisors) enabled patients to recognize and verbalize inadequacies and to achieve a basic level of social maturity. The program included: special classes in cookery, money management, and social vocabulary to develop self-confidence; educational outings to develop environmental awareness; and a system of incentive pay to encourage good time-keeping, work habits, social graces, and general behavior. Widening social perspectives of group participants were evident in work parties which were formed to assist other patients in reaction to imagination/musical sessions, and in participation in stress-situation sociodramas. (No refs.) - *C. Rowan.*

Monyhull Hospital
Birmingham
England

1475 MARTIN, MARJORIE J. Training program—Nursing Division, University Affiliated Facility, Miami, Florida. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 828-829.

The training program for nurses at the graduate level at a University-Affiliated Facility (Miami, Florida) should prepare them for leadership positions in clinical practice, teaching, and supervision in the field of MR. Multidisciplinary approach and preventive public health concepts will be emphasized in these programs. The nurses should become knowledgeable about the early developmental training of the preschool MR child, the use of play materials, and training techniques. (No refs.) - *M.G. Conant.*

1476 HAAR, DORIS. Trends in mental retardation nursing in the U.S.A. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 887-888.

A team approach is increasingly used by nurses in the field of MR, and they participate in nursing teams and in multidisciplinary teams in diagnostic and treatment centers. They are applying developmental testing methods to young children, who are suspected of having brain damage, to supplement observations of behavior in non-structured situations. The use of operant conditioning training programs in the areas of toileting, feeding, undressing, dressing, and other skills is increasing, and the group discussion technique is being used with attendants, minimally retarded persons, and their families to help with inter-personal relationships. (No refs.) - *M.G. Conant.*

1477 AXELROD, IDA. Nursing care of the mentally retarded: Patterns of change. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 879-882.

In the nursing profession, there is a growing awareness of the retarded person as a learning individual with special needs. Nurses are becoming increasingly involved in training and educational programs which use new methods, such as operant conditioning. The disastrous effects of emotional and social deprivation are also producing changes in nursing care. It is hoped that the stimulation of the newer methods will add to, but not replace, the basic qualities of nursing care. (11 refs.) - *M.G. Conant.*

1478 ROSENBLUM, GERSHEN. The new role of the clinical psychologist in a community mental health center. *Community Mental Health Journal*, 4(5):403-410, 1968.

New roles for the clinical psychologist are emerging in community programs for the emotionally disturbed and MR. One of the most prominent of these roles is within the community mental health center. The clinical psychologist in the community mental health center can be involved in: mental health consultation; application of new treatment approaches; involvement in planned community change; education; and research. Traditional training programs are inadequate for preparation in this area because community mental health clinical psychologists need a broad sociocultural view, yet they must be able to employ various psychotherapeutic approaches. (10 refs.) - *J. M. Gardner.*

South Shore Mental Health Center
Quincy, Massachusetts

1479 DEAN, DONALD B. Psychiatry and the problem of mental retardation. In: Szurek, S.A., & Berlin, I.N., eds. *Psychosomatic Disorders and Mental Retardation in Children.* (Langley Porter Child Psychiatry, Volume 3.) Palo Alto, California, Science and Behavior Books, 1968, p. 156-165.

Despite the magnitude of the problem and its relatively long history, MR has been ignored by psychiatrists who traditionally attend to the areas of mental hygiene and psychoanalysis. This is partially because of the identification of MR with state institutions. Current work in the field is reversing this trend. As increasing numbers of MRs remain in the community, the psychiatrist can provide differential diagnosis, therapy with retardates and parents, administrative planning, and consultation. (15 refs.) - *J.M. Gardner.*

1480 SZUREK, S.A., & BERLIN, I.N., eds. *Training in Therapeutic Work with Children.* (Langley Porter Child Psychiatry Series, Volume 2.) Palo Alto, California, Science and Behavior Books, 1967, 300 p. $6.95.

Psychotherapy with children is treated within a psychoanalytic framework in this collection of articles from staff members at the Langley Porter Clinic. The theory and practice of child therapy and the training of child therapists presented here are based on the principle that learning is founded on an integrative experience with another more experienced and mature individual over time. Delinquency, schizophrenia, other psychoses of childhood, and MR are discussed. (No refs.) - *J.M. Gardner.*

CONTENTS: An Attitude Toward (Child) Psychiatry; An Overview of a Philosophy of Psychotherapy in Child Psychiatry; Simultaneous Psychotherapy of Child and Parents; Development of a Philosophy of Training in Child Psychiatry.

1481 MILLER, LEE G. Toward a greater understanding of the parents of the mentally retarded child. *Journal of Pediatrics*, 73(5):699-705, 1968.

The family physician or pediatrician who tells parents that their child is MR must be prepared to provide counseling. Skill and understanding in the presentation of such a diagnosis is achieved through a knowledge of

parental life experience, family integration, and parental attitudes, and an understanding of the stages which lead to adjustment (shock and disorganization, "chronic sorrow," and reintegration). The physician must deal with reality and allow parents to move through the adjustment phases according to their own timetable, and he must promote adaptation by outlining specific recommendations, avoiding long-range prognostications, and encouraging active parental participation in planning for the child. (12 refs.) - *C. Rowan.*

Division of Child Health
University of Washington
Seattle, Washington 98105

1482 HARTLEY, ALBERT I. Identifying the physically abused child. *Texas Medicine*, 65(3):50-55, 1969.

In the evaluation of the condition of a physically abused child and of the advisability of reporting to legal authorities, the physician must consider the welfare of the child and his own legal, ethical, moral, and medical responsibilities. Discrepancies between apparent injuries and the parents' story are often the first indicators of deliberate abuse. A family in serious social difficulty is most often the setting for child battering. High risk is associated with being the youngest or only child, a white girl or Negro boy, under age 3, in a family where the caretaking persons are not both natural parents, or where the parents have crossed traditional racial, cultural, or age patterns to marry. Parental response to the physician's suggestion of abuse is an extremely important prognostic sign. In a climate of high index of suspicion, high risk, and parental response consonant with poor prognosis, the physician is obligated to bring the matter to the attention of the authorities. (7 refs.) - *E.L. Rowan.*

Social Service Department
University of Texas Medical Branch
Galveston, Texas 77550

1483 CROLL, JUDY. Professional responsibility for the medical and educational treatment of the non-communicating child—How far can the speech therapist be expected to assist? *Rehabilitation in Australia*, 5(2):18-19, 24, 1968.

The role of speech therapy in training programs is vital when one realizes that approximately 5% of the school population has speech or speech-associated problems and that this proportion is considerably higher among MRs. Speech therapists treat disorders of speech, voice, and language. Among speech defects, 70% are problems of articulation which include baby talk, lisping, and oral inaccuracy. They are usually caused by organic abnormalities, motor incoordination, emotional conflict, developmental retardation, or perceptual difficulties. The second major speech disorder area—voice disorders—includes stammering, cluttering (slurred or omitted syllables), and the speech of the cerebral palsied. Defects in voice may be in pitch, intensity, or voice quality. In cases of retarded language development, it is important to try to determine the cause. Some common causes are MR, hearing loss, defective coordination, prolonged illness, lack of motivation, bilingual environment, emotional disturbance, and aphasia. Therapeutic goals include the creation of a need to communicate, training in the alphabet of sound, the combination of sequences of sounds, and building a basic vocabulary. (3 refs.) - *J.M. Gardner.*

No address

1484 RENFREW, CATHERINE. The speech therapist in school. *Special Education*, 57(4):9-10, 1968.

Although speech therapists in Great Britain are primarily associated with the field of medicine, 3/4 of them were in the field of education in 1960. Training affords opportunities to visit regular primary and nursery schools and special schools for MRs and CPs; however, overall training emphasizes medicine. Therefore, some difficulty is encountered by the therapist working in the field of education, as he is most often not a permanent staff member of any one school, is somewhat isolated, and visits from 3 to 6 schools weekly. The speech therapist must establish rapport with teachers and other permanent staff members and must seek teacher cooperation and assistance in referring children and in providing supplemental instruction for students who are less handicapped. Permanent full-time speech therapists in special schools must cooperate and jointly investigate theories and methods with doctors, psychologists, and teachers. (No refs.) - *V.R. Shaffer.*

United Oxford Hospitals and Oxford City Schools
Oxford, England

1485 CURZON, WINIFRED M. The teaching profession and the part in it of the teachers of the mentally retarded. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 728-730.

Teachers of the MR are an essential element of the teaching profession, and as such, their training programs should be designed to provide the student with up-to-date knowledge as well as practical guidance on the best use of this knowledge. Training courses for special education teachers should be investigated and remodeled to meet the special needs of students and furnish new teaching approaches. In addition, the recruitment of teachers should be carefully considered so as to obtain well-qualified persons with adequate knowledge in the theory and practice of teaching MR children and adolescents. (No refs.) - *M.G. Conant.*

1486 BILLINGSLEY, J.F. A general approach to teacher education. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 731-733.

Presently, there are new techniques, devices, staffing procedures, and research which provide teachers of MR children with opportunities to develop the skills and

background necessary to cope with the behavior and learning needs of their pupils. Current trends in teacher education which are encouraging include: emphasis on the evaluation and remediation of specific behavior; greater use of practical experiences to develop teaching skills; training programs with emphasis on child development and developmental patterns; diagnostic teaching; and the development of research programs to evaluate the relationship between teaching procedures, teacher training programs, and the behavior of children. (9 refs.) - *M.G. Conant.*

1487 BJOEDSTRUP, L. Symposium on training teachers of the mentally handicapped. In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 734-737.

The special educator should be competent in the general field of education, in the field of special education, and in a special sub-handicap area. Teacher training systems should be more integrated and coordinated, and teachers of normal students should be able to identify handicapping defects as early as possible and to channel special educational and other rehabilitative measures to benefit the child. Finally, service systems for special teacher training should be common to all mankind, and UNESCO activities in this field should be supported. (No refs.) - *M.G. Conant.*

1488 SHEILA, M. When you wish upon a star: The self fulfilling prophecy and special education. *Education and Training of the Mentally Retarded*, 3(4):189-193, 1968.

A teacher's expectation of success or failure for an individual pupil is unconsciously transmitted to the student, and he often performs in accordance with these expectations. Because an outcome is prophesied, behavior is unconsciously altered so that the prediction is more likely to occur. A teacher was told that a group of students would progress rapidly during the year. The students were randomly selected, but progressed much more rapidly than a control group that the teacher did not expect to gain significantly. The opposite is also true—failure can be expected and become fact; MR are labeled and put in special classes where often little is expected and little achieved. The same MR child would probably achieve more in a regular class. The special education teacher should be aware of how important his outlook is to MR achievement. Teacher expectancy sets goals and determines methods, and so affects what the child learns. (13 refs.) - *M. Plessinger.*

St. Coletta School
Jefferson, Wisconsin 53549

1489 SCHMIDT, LEO J., & NELSON, CALVIN C. The affective/cognitive attitude dimension of teachers of educable mentally retarded minors. *Exceptional Children*, 35(9):695-701, 1969.

Eighty teachers of EMR students (grades 7-12) in Southern California were surveyed to determine affective/cognitive goals in special education classes. The Preferred Student Characteristic Scale was designed to determine teacher attitude in terms of affective and cognitive goals. Variables included length of classroom experiences, grade levels, experience, and sex differences. Special class teachers considered personal and social adjustment to be the dominant goal in their methods rather than the acquisition of subject matter. Grade level or previous experience were not significant factors. Men and women special class teachers displayed similar attitudes relating to affective/cognitive goals. (19 refs.) - *B. Bradley.*

California State College
Fullerton, California 92631

1490 DINGER, JACK C. A plea for more teachers to discover that: Parents are people too! *Education and Training of the Mentally Retarded*, 3(4):162-163, 1968.

A close relationship between teachers and parents of retarded children is beneficial because it leads to greater communication and mutual respect. It is important for the teacher to communicate interest in the child's improvement and a desire for help from the parents. (No refs.) - *J.M. Gardner.*

Department of Special Education
Slippery Rock State College
Slippery Rock, Pennsylvania 16057

1491 FARGO, GEORGE A., FUCHIGAMI, ROBERT Y., & CAGAUAN, CRISTINA. Using videotapes in training teachers of the mentally retarded. *Education and Training of the Mentally Retarded*, 3(4):202-206, 1968.

Research on preservice and inservice teacher training has shown that videotapes may provide a fruitful approach since they allow for the close analysis of teacher-student interaction and for immediate and repeated replay of simulated and actual classroom settings. An easily transported complete audio-visual unit has been developed for use in conjunction with teacher education at Stanford University (California). Research conducted in Hawaii and Oregon involved recording teaching sessions with normal and retarded children and then obtaining appraisals from the teachers before they viewed the tapes. Both the theoretical and practical implications of this new procedure should be investigated in order to define and enhance the range of teaching approaches. (20 refs.) - *J.M. Gardner.*

Department of Special Education
University of Washington
Seattle, Washington 98105

1492 CLEUGH, M.F. Courses for teachers of handicapped children in London. *Remedial Education*, 2(3):89-90, 1967.

The University of London Institute of Special Education has introduced 4 courses for teachers of educationally MR children in 1950, maladjusted children in 1954, and physically handicapped and/or deaf children with accompanying emotional problems

and/or MR in 1964 and 1965. Although specific handicaps cannot be isolated because they tend to overlap, special education courses appear to be a vital part of the university curriculum and should be designed to accommodate group discussions in order to obtain maximum benefit. (2 refs.) - *V.R. Shaffer.*

University of London
London, England

1493 MEYEN, EDWARD L. A statewide approach to inservice training for teachers of the mentally retarded. *Exceptional Children*, 35(5):353-357, 1969.

A program was developed in Iowa to provide in-service education for special education teachers. The state was divided into geographical areas and a teacher representative was selected from each area. Curriculum materials were provided, and field sessions were held monthly in 23 sites. Consultant teachers attended campus seminars to obtain information and materials; a full-time staff member handled coordination between a Special Education Curriculum Development Center on the University of Iowa campus and the field operations. The consultant teachers were selected from special education teachers and received a stipend for their service in training other special education teachers. In-service topics were assigned priorities on the basis of the results of an extensive questionnaire which was distributed to teachers. (No refs.) - *V.G. Votano.*

Special Education Curriculum Development Center
University of Iowa
Iowa City, Iowa 52240

1494 HALL, JUDITH. A training scheme for teachers of mentally handicapped children. *Teaching and Training*, 6(2):51-55, 1968.

At St. Nicholas' School in Kenya, special education teacher training includes lectures, practice teaching, observation visits, and field trips to points of interest with MR children. Upon completion of the course, 2 pay increments and a special endorsement on the teaching certificate are given to each student teacher. Lectures are sponsored by various service organizations, local schools, and colleges. This teacher training course is residential, and student teachers take active parts in the school routine. (No refs.) - *V.G. Votano.*

St. Nicholas' School
Nairobi, Africa

1495 DELP, HAROLD A. An internship method for training special class teachers. *Exceptional Children*, 35(2): 161-162, 1968.

Two internship programs at Temple University were instituted in an attempt to overcome some of the insufficiencies encountered in traditional teacher training programs. The internship programs are designed for liberal arts and education majors, and these programs lead to a master's degree in education. Internship begins with a 12-week summer program which includes course work, observation, and assisting with retarded children. This is followed by placement in a private school where further training occurs. In the fall, students are assigned as regular teachers in special classes, and continue their course work. Such programs appear to be effective methods of meeting the manpower need for teachers of the MR. (No refs.) - *J.M. Gardner.*

Department of Educational Psychology
Temple University
Philadelphia, Pennsylvania 19140

1496 BLACK, A.K. Some problems facing the probationer teaching backward children. *Remedial Education*, 2(3):98-100, 1967.

A first-year teacher usually cannot handle all the problems of a remedial class; problems of inattentiveness, apathy, aggressiveness, and lack of general ability are less competently handled by a new teacher than by an experienced one. Teachers fresh from college are often prepared in classes and in student teaching for the average and above average child; they are not trained to handle different levels of curriculum and to supervise below average intelligence classes. Teachers are expected to overcome poor family situations where the child is neither encouraged to read and write nor given a model of parental reading. Since emotionally deprived children misbehave to attract attention, beginning teachers need to understand this and decide on the type of punishment to use. Schools should phase out remedial classes or should assign more experienced teachers to such classes. (5 refs.) - *S. Markworth.*

No address

1497 EVANS, KENNETH E. The recreation teacher as a special educator. *Devereux Schools Forum*, 4(2):66-72, 1968.

The recreational teacher who is involved with students in his spare time faces the greatest program problem in a residential treatment facility. Participation in the physical education program can encourage social and emotional growth or can result in withdrawal of the emotionally-disturbed or MR child, and the attitude and skill of the recreation teacher has a great deal to do with the final outcome. Satisfaction and a sense of accomplishment reward the teacher who regards games as learning tools; considers the individual needs, preferences, and abilities of pupils; teaches skills well for the child's maximum performance and enjoyment; and modifies the program to suit competitive attitudes. (No refs.) - *C. Rowan.*

No address

1498 COCOZZELLI, JOSEPH P. "The teacher, that's who." *Pointer*, 12(3):31, 1968.

The most vital part of any special education program is a capable, understanding teacher. Although program guides, mechanical devices, and atmospheric conditions are important, success or failure in teaching EMRs

depends upon the human element—the teacher. (No refs.) - *V.R. Shaffer.*

No address

1499 Programs for handicapped. *Journal of Health, Physical Education and Recreation*, 39(8):83-84, 86, 1968.

In an effort to inform persons involved in the fields of health, physical education, and recreation for the mentally and physically handicapped, specific responses are requested from knowledgeable persons regarding: university curricula for preparation of instructors of the handicapped; programs which reflect similarities rather than differences between handicapped and non-handicapped persons; programs to accommodate adolescents and adults who are handicapped; and individualized techniques and ideas to provide fuller and more enjoyable lives for handicapped persons. A survey on the specialized training and/or skills needed to make instructors effective with MRs included suggestions on personal qualities (patience and empathy) and professional qualifications. (No refs.) - *V.R. Shaffer.*

1500 GOLDMAN, WILLIAM J., & MAY, ANNE. A frame of reference for the professional person. *Pointer*, 12(3):35-36, 1968.

Effective communication and sincerity are important factors in the professional's successful relationship with MRs. An understanding of the different socioeconomic backgrounds of MRs can enable the professional to recognize the MR as an individual. Observance of the MR's performance is necessary in order to evaluate abilities and potential and provide the teacher with information which can be used to choose among different teaching methods. Finally, the professional must acknowledge the need for self-evaluation. (No refs.) - *V.R. Shaffer.*

State College
Fitchburg, Massachusetts 01420

1501 LYNCH, MARY. Professional social work in the field of mental handicap (Ireland). In: Richards, B.W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency*, held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 921-922.

The report of the Commission of Inquiry on Mental Handicap (Ireland) stresses the need for a full team, including a social worker, in the assessment of mental handicap and in family guidance. Since this report was presented, there has been more demand for trained social workers in the field of MR, and other organizations have recognized the need for psychiatric social workers. There are not enough trained personnel to fill vacancies now, but hopefully, the universities will be able to produce well-trained and qualified personnel in the near future. (No refs.) - *M. G. Conant.*

AUTHOR INDEX

The author index has been compiled on the basis of abstract numbers rather than pagination.

- A -

Aagenaes, O., 838
Aarskog, D., 1048
Aase, Jon M., 940
Abbas, A., 1081
Abbo, G., 1024
Abdelnour, G. M., 812
Abdel-Salam, Ekram, 1047
Abels, Paul, 1444
Ablon, Gridth, 1141
Abrahamov, Abraham, 725
Acosta, Phyllis B., 799
Adam, Avinoam, 866
Adam, Peter A. J., 754
Adams, William P., 1465
Adler, Belle, 1312
Aguilar, Mary Jane, 961
Ainger, Lorin E., 1046
Akesson, Hans Olof, 617
Akiyama, Yoshio, 677
Albizu-Miranda, C., 974
Alexander, Doris, 888
Alexander, Jim, 1294
Alfieri, A., 930
Alkema, Chester Jay, 1245, 1246
Allan, J. D., 785
Allegheny County Society for Crippled Children and Adults, 1214
Allen, Donald M., 733, 742
Allen, Norman, 922
Allen, Robert M., 1163
Alley, Gordon Robert, 1164, 1222
Altmann, Franz, 871
Alu, C., 930
Amuso, Samuel Joseph, 867
Anant, Santokh S., 1265
Anders, P. W., 809
Anderson, Gail V., 718
Anderson, Robert M., 1204
Ando, T., 822, 823
Angle, Carol R., 1138
Apffel, James A., 1169
Appenzeller, O., 923
Arakawa, Tsuneo, 826
Aref, Galal H., 861
Arias, Doralys, 753, 1043
Armstrong, Jenny R., 1247
Aserlind, L., 1261
Association for Childhood Education International, 633
Ataide, L., 924
Attard, J., 1429
Avedon, E. M., 1437
Axelrod, Ida, 1477
Ayer, Howard E., 1301
Azimi, Parvin H., 699
Aziz, Hasan, 953
Azzopardi, S., 1449

- B -

Babayan, S., 900
Baer, Donald M., 1241
Bailey, David W., 995
Baird, P. A., 1016
Baker, J. R., 869
Balaban, Gloria B., 1062
Balazs, R., 864
Baldwin, James L., 929
Ball, Thomas S., 1277
Baloch, S., 770
Bank-Mikkelsen, N. E., 1398
Barber, Gerard M., 1303, 1388
Barbero, Giulio J., 888
Barclay, A., 1191
Barnard, James W., 1101, 1116
Barnard, Kathryn, 1466
Barnett, R., 1073
Bartlett, Richard H., 1284
Bascom, Anthony F., 782
Bateman, Barbara, 1168, 1438
Batt, Bernard, 755
Bau, S., 772
Bauchinger, M., 1009
Bauer, Henry, 782
Bavin, J. T. R., 1426
Bayer, Manfred E., 729
Bayes, K., 642
Bazso, J., 897
Beard, Celeste, 1240
Bechtereva, N. P., 680
Behrns, Charlene, 1236
Beischer, N. A., 936
Belden, Kathy H., 1035
Bell, Bess, 1216
Bender, K., 1001
Bennie, E. H., 1459
Berendt, Hildegard, 1119
Berg, J. M., 946
Berlin, I. N., 623, 1480
Berlow, S., 790
Berryman, Joan D., 1278
Bessman, Samuel P., 803
Beutler, Ernest, 832, 881
Bias, Wilma B., 1010
Bickel, Horst, 804
Biezenski, Jerzy J., 735
Biggerstaff, Robert H., 927
Billingsley, J. F., 1486
Birnbrauer, J. S., 1269
Bixler, David, 950
Bjerre, Ingrid, 979
Bjoedstrup, L., 1260, 1487
Black, A. K., 1496
Black, J. A., 850
Blair, A. A. D., 757
Blair, Francis X., 1226
Blake, D. H., 1318
Blanchard, Gabriel, 1415
Blanchard, Irene, 1240
Blanton, Joseph, 1392
Blattner, Russell J., 848
Blaw, Michael E., 998
Blazer, John A., 1185
Blom, Sigfrid, 662
Bloom, Gerald E., 1055
Blue, C. Milton, 1162
Blumberg, Baruch S., 729, 1029
Bobbitt, Ruth A., 1462
Bode, Mary Jane, 1251
Boder, Elena, 961
Boer, Arend P., 1175
Boggs, Dallas E., 786, 819
Boggs, Elizabeth M., 1396
Boles, Theresa A., 742
Bolognese, Ronald J., 759
Bombart, E., 928
Bonar, George, 1243
Bone, Margaret, 1372
Boone, Jerry N., 1192
Boonyaprakob, Urabala, 746
Booth, A. E., 904
Borgaonkar, Digamber S., 1010
Borkowf, Shirley P., 1010
Borkowski, Mary Ramona, 1200
Borst-Eilers, E., 734
Bosch, G., 1152
Botha-Antoun, E., 900
Boverman, Harold, 1365
Bradford, William D., 671
Bradley, Betty Hunt, 1221
Brame, R. G., 1071
Brand, Donna L., 1365
Bray, P. F., 822
Breg, W. R., 1006
Breitenmoser, A., 627
Brennan, Matthew J., 639
Bricker, Diane D., 1174
Bricker, William A., 1174
Brissaud, H. E., 788
Brookes, R. C., 1338
Brooks, B. David, 1274
Brown, D. F., 796
Brown, J. K., 785
Brown, Joe, 1250
Brown, W. J., 794
Brownell, Betty, 958
Brucher, J. M., 956
Bruhl, Heinz H., 782
Bruininks, Robert H., 1231, 1234, 1235, 1237, 1238
Brunning, Richard, 964
Bryant, Allyn G., 1356
Bryant, Jean S., 935
Bryant, P. E., 1095, 1097
Buchanan, Robert A., 1308
Buchholtz, Kay, 1285
Buchsbaum, Herbert J., 773

Budoff, M., 1195
Bullard, Dexter M., Jr., 977
Burdick, Claude O., 836
Burke, Edmund C., 914
Burns, Kevin, 1279
Butomo, I. V., 1039
Butts, John E., 1328, 1329, 1330
Buynak, Eugene B., 714
Byrd, Coleen, 1160

- C -

Cagauan, Cristina, 1491
California Mental Hygiene Department, 1236
Campaigne, E., 997
Campbell, C. B., 903
Campbell, Mary M., 935
Carlson, C. B., 920
Carlson, Ralph M., 1266
Carpenter, Malcolm B., 652
Carr, Jane R., 831
Carranza, Fermin A., Jr., 1021
Carraro, Juan J., 1021
Carrel, Robert, 1337
Carroll, Marilyn M., 1132
Carson, Nina A. J., 808
Carter, C. O., 681
Carter, Charles H., 951
Cartwright, G. Phillip, 1171
Cary, Henry B., 1248, 1249
Case, James L., 1170
Cassady, George, 907, 1073
Cassell, John T., 1293
Castelijns, A., 1311
Cavanagh, J. B., 963
Ceccarini, M., 930
Cerva, L., 726
Chamberlain, Geoffrey, 767
Chamberlin, Harrie R., 922
Champakam, S., 891
Chandra, R. K., 893, 1036
Charles, D., 1050
Chaudhuri, Amala, 1036
Chaudhuri, K. C., 1036
Chigier, E., 1014, 1420
Chiovaro, Stephen J., 1361
Chisholm, J. Julian, Jr., 749
Chiva, M., 1129
Chopra, J. S., 808
Chow, Bacon F., 895
Christian, Joe C., 950
Cieters, P., 875
Cifonelli, J. Anthony, 872
Citizens' Board of Inquiry into Hunger and Malnutrition, 635
Clark, Danny M., 718
Clarke, C. A., 731
Clausen, Jorgen 842, 952
Clayton, Robert J., 1053
Cleugh, M. F., 1492
Cleveland, William W., 1043
Clower, Courtney G., 811
Cobak, Vera, 896
Cobb, H. V., 1157
Cobb, James H., 1101
Cobb, William, 728
Cocchi, P., 724
Cochran, Malcolm L., 1161
Cocks, W. A., 864
Cocozzelli, Joseph P., 1498
Coffelt, R. Wendell, 784
Coffey, Victoria P., 870, 882
Coffin, G. S., 945
Cohen, B. E., 779
Cohen, Herbert J., 967
Cohen, Michael I., 748
Coldwell, James G., 784
Collins, Dean T., 1368
Committee On Children With Handicaps, 1254
Conard, Susan Gregg, 1442
Cone, Thomas E., Jr., 659
Connolly, Josephine, 951
Conway, Mary Madeleva, 1402
Cooke, Robert E., 884
Cooke, Roy, 1326
Cooper, D. G. W., 912
Cooper, Louis Z., 713
Corelius, Eivor, 979
Corkery, J. J., 740
Corner, Beryl D., 818
Corson, Stephen, 759
Corte, Enrique, 1126
Costanzo, Vicente, 1390
Cotter, Vance, 1419
Cour, Les, 711
Cowie, Valerie, 1017
Cox, D., 1257
Cox, Gillian, 616
Cramblett, Henry G., 699, 1125
Crawford, John D., 831
Cremer, N., 875
Crichton, J. U., 758
Crocker, Allen C., 873
Croll, Judy, 1483
Crome, L., 939
Cronan, Marion L., 638
Cronholm, Borje, 1166, 1167
Cronlund, Malcolm M., 1029
Cross, Harold E., 859
Crosson, James E., 1292
Crussi, F. Gonzalez, 813
Culbertson, C. G., 726
Culley, William J., 1033, 1064
Cumings, J. N., 787
Cupp, Marion Earl, 1113
Curcic, B., 896
Currie, Catherine, 1173
Curtius, H. Ch., 809
Curzon, Winifred M., 1485
Cusworth, David C., 781

- D -

Dabke, A. T., 1036
Dahlqvist, Arne, 1070
Dallaire, Louis, 1027
Daly, J. J., 1037
Daly, James W., 771
Dam, Mogens, 991
Daniel, Salha S., 1074
Daniel, Sara Jo, 907
Das, J. P., 1112
Davidson, W., 798
Davis, Karen V., 1306
De'ak, William R., 766
Dean, Donald B., 1479
De Barros, M. Caetano, 924
De Capoa, A., 1006
De Coriat, Lydia F., 1020
De Grignon, C. Lamonte, 1087
DeHaven, George E., 1083
Dekaban, A. S., 1019
De La Cruz, F., 1012
Delamonica, Enrique A., 990
De Lorenzo, Eloisa Garcia Etchegoyhen, 640, 1086, 1323
Delp, Harold, 1495
Denhoff, Eric, 666, 1194
Denney, Sarah L., 1313
Dent, H. E., 1314
DeSa, D. J., 768
De Tellechea, Maria Cristina, 1208
Dettenheim, Edward N., 1286
Deutsch, Martin R., 1159
De Valera, Eamonn, 762
De Wit-Sauter, A. M., 649
Dexter, Robert, 879
Dey, Judith, 868
Diamond, Louis K., 1055
Di Cagno, Livia, 1041
Di Jenno, Rita, 1252
Di Lorenzo, Louis T., 1215
Dimich, Ivan, 932
Dinger, Jack C., 1490
DiPaolo, J. A., 1063
Dobbing, J., 899
Dobson, James, 797
Dodion, J., 875
Dods, L., 706
Doege, Theodore C., 935
Donald, G., 723
Donnell, G. N., 879
Donoghue, Elaine C., 1081
Doose, H., 980
Dorfman, Albert, 872
Dorgan, Jean, 1305
Dorion, Marc, 886
Doris, John, 651
Dorst, John P., 810
Douglas, Virginia I., 1156
Drachman, David A., 968
Drew, Clifford J., 1098
Dreyfus-Brisac, C., 675
Driscoll, John, 1258
Drossman, L. Marlyn, 654
Drowatzky, John N., 1439
Dubowitz, Victor, 664, 740
Ducas, P., 676
Dudok de Wit, C., 734
Dulnyev, G. M., 1220
Dumermuth, G., 800
Duncan, Burris R., 784
Dunk, Marianne G. C., 1455
Dunn, D. P., 994
Dunn, Lloyd M., 1234, 1235, 1237, 1238, 1239
Dupont, Annalise, 1369
Dutta, Tapti, 1112
Dybwad, Gunnar, 1414
Dyggve, H., 842

- E -

Eades, Sheila M., 741
Earle, Kenneth M., 965
Eastham, R. D., 683
Eayrs, J. T., 864
Ebbin, Allan J., 1028
Eckstein, H. B., 913
Edgar, Clara Lee, 1277
Edozien, Joseph C., 890
Egan. D. F., 661
Eguia, J. I., 1397
Ehrhardt, Anke A., 855
Ejlers, E., 644
Elliott, Rogers, 1267
Ellis, Norman R., 621
Emery, F. A., 828
Engel, Eric, 1000, 1013
Engel, Knud, 1076
Epps, Roselyn Payne, 778
Erba, Giuseppe, 673
Erickson, Marilyn T., 1461
Erwin, Howard, 1063
Espeseth, Vernon K., 1098
Evangelakis, M. G., 1387
Evans, Kenneth E., 1497
Ey, H., 1325

- F -

Fagan, Joseph F., III, 1099
Faires, Wesley L., 1122
Fallstrom, S. P., 745
Familant, Joseph W., 926
Fargo, George A., 1491
Farias, W., 924
Farnham, Elizabeth, 1023
Farquhar, John D., 709
Feingold, Murray, 853, 885, 933
Feldmann, H., 1181
Felitti, Vincent J., 854
Fenichel, Gerald D., 995
Fernandez-Alvarez, E., 1088
Ferrier, Pierre E., 1031
Feuerstein, R., 1177
Fiedler, Joanne L., 799
Field, C. M. B., 806
Finley, Sara C., 1022
Finley, Wayne H., 1022

Finnstrom, Orvar, 662
Fisch, Robert O., 782
Fishman, Sherwin R., 1336
Fletcher, Barry D., 810
Flor-Henry, P., 989
Fogarty, Rosemary, 1392
Fogel, Bernard J., 753
Ford, Joe H., 1182
Forrest, D. M., 912
Forsythe, John S., 1346
Fortune, D. W., 936
Foster, Carol, 1419
Fowler, Brian, 876
Fox, Elizabeth, 1464
Fraccaro, M., 844
Frame, H. B. P., 1290
Franceschini, P., 1041
Francisco, C. B., 691, 1409
Frankel, Jacob J., 862
Frankenburg, William, 797
Frankenburg, William K., 784
Franks, Cyril M., 1270
Franks, Violet, 1270
Fraser, W. I., 931
Fratantoni, Joseph C., 874
Fredga, Karl, 1007
French, J. H., 863
Frost, Joe L., 634
Fuccillo, David A., 716
Fuchigami, Robert Y., 1491
Fujimoto, Wilfred Y., 814, 815
Fuller, Renee, 802

- G -

Gabler, Marjorie, 892
Gabrielson, Ira W., 669
Gagnon, Raymond A., 697
Gajdusek, D. C., 966
Gall, Joe, 1393
Gallagher, Jack R., 1100
Galli, J., 788
Gandolfo Caramello, M. T., 747
Gangnes, A. G., 648
Ganguly, D., 1142
Garcia, Aparecida G. P., 692
Gardner, James M., 1263
Gardner, P. S., 720
Gardner, Thomas D., 1116
Gardner, William I., 1128
Garzicic, Branimir S., 1049
Gastaut, H., 987
Gatfield, P. D., 812
Gaulden, Gary L., 1310
Gauron, Eugene F., 1307
Geddes, Dolores M., 1320
Geers, P. A. M., 1255
Geisler, A., 1061
Gellis, Sydney S., 885, 933
Gerald, Park, 1055
Gerken, H., 980
German, James, 1058
Gerritsen T., 822, 823
Gerstenberg, Miriam Thomas, 1458
Gerstley, Betty Jane S., 1029
Geschwind, N., 911
Geursen, T. J., 643
Gey, W., 1001
Ghai, O. P., 893
Giammona, S. T., 1380
Gibbs, C. J., Jr., 966
Gibbs, Charles E., 771
Gibson, J., 1425
Gilkeson, Mary Ruth, 716
Gill, Roy C., 1283
Gilmore, Alden S., 1256
Giraud L'Herbault, G., 1134
Girardeau, Frederic L., 1126
Givelber, Harry M., 1063
Gjessing, L. R., 827
Glaser, Helen H., 977
Godinova, A. M., 1039
Gold, Eli, 694
Goldie, L., 828
Goldman, V., 1338
Goldman, William J., 1500
Gong, L., 822
Gooch, Bill, 1236
Good, Thomas A., 889
Goodhart, C. B., 1018
Goodman, Stephen I., 830
Gopalan, G., 891
Gordon, Edmund W., 1210
Gordon, John E., 1091
Gordon, Lamar R., Jr., 1386
Gordon, Sol, 1227
Gorlin, Robert J., 950
Gosset, Franz R., 1045
Gousset, A., 1065
Graham, J. Keith, 1122
Graham, Philip, 978
Graw, Robert G., Jr., 766
Gray, William F., 1274
Graziani, L. J., 863
Greene, Martin L., 814
Gregg, Grace S., 976
Gregoire, P. E., 875
Griffiths, Michael J., 876
Grinfeld, Andre, 725
Gripenberg, U., 1008
Grossman, Marvin, 852
Grossmann, Gunther, 1224
Groves, B. M., 1024
Grundt, I. K., 787
Grunewald, K., 646
Guay, J. Michel, 886
Guazzi, G. C., 956
Guess, Doug, 1241
Gunter, R., 794
Gustavson, K. H., 1005
Guthrie, Robert, 880

- H -

Haar, Doris, 1476
Hackney, I. M., 798
Hagberg, Bengt, 837
Hainsworth, Peter K., 1194
Haley, John B., 1336
Hall, Clara W., 874
Hall, Eric, 1155
Hall, Judith, 1494
Halliday, Harry, 1293
Hallman, Niilo, 834
Hallpike, J. F., 757
Halsey, James H., Jr., 922
Hambraeus, L., 793
Hancock, Millie P., 705
Hanley, W. B., 798
Hannaford, Alonzo E., 1291
Hanson, Virgil, 795
Harbert, G. M., Jr., 1071
Hardy, Julian P., 1022
Harfouche, J. K., 900
Hariga, Jacques, 962
Haring, Norris G., 1211
Harley, J. D., 706
Harper, Max A., 1456
Harrison, A., 678
Harrison, Enid M., 1172
Hart, Wayne, 1280
Hartley, Albert I., 1482
Hartman, James W. D., 1122
Hassan, Abdelhadi I., 861
Hathaway, Starke R., 1143
Hausman, Ralph M., 1169
Haust, M. D., 812
Havelkova, Milada, 1281
Haynes, Ralph E., 699
Haywood, H. Carl, 1091, 1094
Heagarty, Margaret C., 977
Heath, Clark W., Jr., 1028
Heber, Rick, 971
Heffelfinger, John C., 1308
Heilbrun, Alfred B., Jr., 1288
Heiner, D. C., 822
Heinz, Harold W., 1339
Heinzelman, Wilma C., 1450, 1451
Henin-Ribeyrolles, D., 1065
Hermelin, Beate, 1105, 1106
Hershenson, David B., 1297
Hertzberg, R., 706
Hertzog, Keith P., 856
Hewer, Richard L., 958, 959
Hey, E. N., 738
Hiejima, Kazumasa, 851
Higgins, Kent E., 1085
Hill, Denis, 1363
Hilleman, Maurice R., 714
Hinton, G. G., 812, 983
Hintz. R. L., 919
Hiscox, James L., 813
Hoddinott, B. A., 1153
Hodgins, Audrey S., 1242
Hofstatter, Leopold, 1140
Hofstatter, Lilli, 1140
Hollander, Charles S., 859
Holley, Keith E., 914
Hollinger, Chloe, 1379
Holt, K. S., 882
Holton, J. B., 818
Honeyman, Merton S., 669
Hook, Ernest B., 700,941
Horgan, B. D., 1389
Horger, E. O., III, 736
Hornabrook, R. W., 960
Howard, Fred H., 951
Howell, D. A., 992
Hsia, David Yi-Yung, 670, 789
Huchton, Paul, 702
Hudson, Frederick P., 783, 797
Hughes, J. Trevor, 958
Hungerford, David A., 1062
Hunter, H., 1037
Huntley, Carolyn J., 657, 658, 705
Hurwitz, L. J., 808
Hutchinson, Donald L., 736, 746
Hutt, Corinne, 1151
Hutt, S. J., 1151

- I -

Iber, Frank L., 1053
Illingworth, R. S., 661, 665
Imre, P. D., 614
Innes, G., 1371
Irwin, Orvis C., 1111
Ising, Renate, 1032
Isshiki, Yasushige, 1340
Ivey, Allen E., 1386

- J -

Jabbour, J. T., 1193
Jachuck, Kasturi, 1112
Jacobson, Cecil B., 815
Jacobson, Ivan V., 763
Jacobson, W., 883
Jacoby, William J., Jr., 852
Jain, K. K., 772
Jain, T. P., 743
Jancar, J., 683
Jaslow, Robert I., 1350
Jenke, Albert, 879
Johansson, S. G. O., 1005
Johnson, A. H., 1318
Johnson, Gordon F., 1391
Johnson, John T., 1117
Johnson, Kenneth P., 909
Johnson, Richard T., 909
Jones, Reginald L., 1379
Jonniaux, G., 875
Jordan, Brian T., 1288
Jorgensen, I. S., 1375
Jungjohann, E., 1152
Jurcisin, George, 1321

- K -

Kagin, Roberta, 1317
Kagin, Sandra Graves, 1316
Kamen, Saul, 1332

Kamoshita, Shigehiko, 961
Kan, O., 645
Kaplan, Eugene, 749
Kaplan, Frances, 1463, 1464
Kaplan, Marvin S., 1045
Karlberg, Petter, 1326
Karnes, Merle B., 1242
Karolkewicz, Valerie, 831
Karp, Moshe, 865
Kaspar, Joseph C., 1158
Kassem, A. Samir, 861
Kaufman, Harvey Isadore, 1298
Kaufman, M.E., 1136
Kaul, K.K., 1036
Keith, C. G., 1051
Kellaway, Peter, 674
Kennaway, N.G., 846
Kennedy, Wallace A., 970
Keogh, Jack F., 1082
Kessler, Jane W., 1141
Khanna, J.L., 1187
Kihara, Hayato, 819
King, R.D., 1408, 1410
Kingsmill-Flynn, Diana, 1027
Kinoshita, S., 645
Kirman, B. H., 1081
Kivalo, E., 1008
Klaber, M. Michael, 1406
Klapman, Howard J., 1365
Klausner, David, 672
Kloosterman, G. J., 734
Kloucek, F., 727
Knight, Marcia Seward, 1102
Knights, R. M., 983
Knott, A. Paul, Jr., 852
Koch, Richard, 784, 795, 797, 799
Kogan, Kate L., 1462
Kohler, Claude, 624
Kohler, Elaine E., 889
Kohler, Peter O., 858
Kohlin, P., 847
Kohlinsky, Sheila, 738
Komrower, G. M., 807, 833, 876, 877
Kopp, Harriett Green, 1118
Kornreich, Helen Kass, 795
Korst, Joseph W., 1111
Koskaska, Charles J., 1440
Kothari, L. K., 743
Kovacs, S., 864
Krivit, William, 964
Krop, Harry D., 1223
Krugman, Saul, 713
Kugler, Johann, 984
Kun, Karoly J., 1092, 1264
Kunkel, Nancy D., 1244
Kurland, L. T., 994
Kurth, Merlen G., 1421
Kushlick, A., 616, 1407

- L -

LaBadie, Gundula U., 1062
Laban, D., 1081
Lafon, Remy, 1133
Lairy, G. C., 678
Lall, K. B., 743
Lally, Robert C., 1197
LaMarche, P. H., 1011
Lambert, Ann M., 876
Lampert, Peter W., 751
Landing, Benjamin H., 961
Langlois, Mary Jacinta, 1219
Laron, Zvi, 862, 865, 866
Larroche, J. C., 774
Larsen, Lawrence A., 1174
Larsson, Harry, 1326
Lascelles, P. T., 757
Lassila, Elton L., 819
Latham, Michael C., 636
Latimer, Ruth, 1331, 1400
Laurence K. M., 910, 963
Laurencelle, Patricia, 1411
LaVor, Martin, 1343
Leboeuf, Giles, 1027
Leckie, Judith, 1472
Lee, Janet, 1028
Lefebvre, G., 942
Lehovsky, Milos, 843
Leisti, J., 1008
Leland, Henry, 619, 1188
Lelord, G., 1065
Lemieux, Bernard, 964
Lent, James, 1419
Leonhard, K., 1119
Lesch, Michael, 816
Levine, Arthur S., 964
Levine, Harry, 1448
Levy, Harvey L., 831
Ley, Anita, 716
Liberthson, Eva, 1454
Lindblad, Bengt, 825
Lindblad, Bo S., 825
Lindenberg, Richard, 921
Lindsao, L., 798
Lin-Fu, Jane S., 732
Lins, S., 924
Lipak, J., 897
Lister, James, 740
Litman, Neil N., 1034
Liu, H. Mei., 954
Lloyd, June K., 841
Locke, Bill J., 1107, 1108
Loeb, H., 875
Loesch-Mdzewska, Danuta, 1025
Loewendahl, Evelyn, 1319
Loken, Aagot Christie, 829
Lombroso, Cesare T., 673
London, W. Thomas, 1029
Loraine, J. A., 1050
Lorber, John, 917
Lovaas, I., 1276
Lowry, M. F., 949
Lucas, Alexander R., 1309
Luciani, J. M., 1003
Lum, Ann, 831
Lunan, Bert, 1441
Lundervold, Arne, 986
Lundstrom, Karen, 1376
Lynch, Henry T., 690
Lynch, Jeremiah R., 1301
Lynch, Mary, 1501

- M -

MacCallum, F. O., 698
MacCready, Robert A., 831
MacGillivray, R. C., 931
Mac Keith, R. C., 661
MacKeith, Ronald, 1362
Macken, J., 956
Mackey, Ray W., 775
Mackie, Romaine P., 973
MacKinnon, Ronald C., 1272
MacMillan, Donald L., 1114
Madigan, Phyllis M., 831
Magendantz, Henry G., 672
Magrini, U., 844
Malan, M., 897
Maler, L., 1282
Malpass, Leslie F., 1256
Maples, Carl, 1377
Marko, Kathleen B., 1229
Martenet, A. C., 809
Martin, J. J., 956
Martin, Liliane, 962
Martin Du Gard, J. P., 641
Martin, Marjorie J., 1475
Martinetto, G., 747
Masovic, S., 631
Massachusetts. Mental Health Department, 1431
Masterson, Vance, 879
Matalon, Reuben, 872
Mathai, K. V., 994
Mathams, Anne M., 1225
Matlin, N., 974
Matters, Barbara, 713
Matthews, W. B., 992
May, Anne 1500
May, J. B., 1011
Mazaheri, Mohammad, 927
Mazzeo, Anthony J., 1310
McAfee, Laurice L., 854
McBean, M. S., 801
McCandless, David W., 887
McClure, Harold M., 1035
McCoy, E. E., 1030
McCullough, James A., 845
McDaniel, Martha W., 1313
McFadyen, Iain R., 746
McGaughey, H. S., Jr., 1071
McGee, Gordon, 702
McGrath, Frances C., 1381
McGuinness, R., 821
McIntire, Matilda S., 1138
McIntyre, Robert B., 1277
McKean, C. M., 786
McKendrick, W., 723
McKenna, J., 1352
McKeown, Thomas, 1366
McKey, Robert, 753
McKinnon, Thomas, 1022
McKusick, Victor A., 859, 1053
McTaggart, David, 955
Meadow, S. R., 707
Mecham, Merlin J., 1170
Medical College of Alabama., 1384
Meile, Richard L., 1138
Mein, R., 1186
Melchior, Johannes C., 842, 952
Mellman, William J., 1056
Mendel, Evri B., 845
Menking, M., 919
Menolascino, Frank J., 1452
Menser, Margaret A., 706
Mercer, Charles V., 1127
Meshorer, Edward, 1092, 1228, 1264
Metcoff, Jack, 892
Metzger, Reva, 1236
Meyen, Edward L., 1196, 1493
Meyer, Harry M., Jr., 721
Middendorf, M. Ann Jospeh, 1401
Middleton, Thomas O., 1064
Miettinen, Tatu A., 860
Mikkelsen, Margareta, 1002
Miles, John, 905
Milgram, Norman A., 618, 1103
Miller, A., 1121
Miller, D. A., 1006
Miller, Eileen E., 1230
Miller, J. R., 1016
Miller, Lee G., 1481
Miller, M. B., 1120
Miller, O. J., 1006
Miller, Ross H., 914
Minde, K., 1282
Minkowski, A., 675
Minnesota. Public Welfare Department, 1416
Mir, Sarah, 770
Mohan, Brij., 1364
Mohr, Jay P., 1093
Moldow, Raymond E., 1028
Moller, Jorn Engel, 991
Molnar, Gabriella E., 967
Moltz, Arnold, 735
Monachesi, Elio D., 1143
Monaco, Theresa Mary, 1110
Money, John, 855
Monod, N., 676
Moore, M. Kent, 1013
Moosa, A., 740
Mordock, John B., 1083, 1470
Morishima, Hisayo O., 1074
Morley, K. G., 1296
Morreels, Charles L., Jr., 810
Morrow, J. E., 1274
Mortensen, Else, 1002
Mortimer, R. H., 903
Morton, Kathleen, 668
Moseley, D. V., 1233

Moshkowitz, Abraham, 725
Moss, Muriel H., 1365
Mueller, Max W., 1178
Muller, M. E., 1232
Murray, M., 1474
Murray, Mary Jeannette, 1378
Myers, Ronald E., 761

- N -

Nadler, Henry L., 667
Najdanovic, R., 896
Nakagawa, Hiroshi, 826
Nance, Joanne L., 1030
Nance, Walter E., 1000
National Foundation-March of Dimes, 650
National Society for Autistic Children, 630
Necheles, Thomas F., 742
Nedok, Alexander S., 1049
Needles, Carl F., 932
Neetens, A., 956
Neisworth, John T., 622
Nelson, Calvin C., 1489
Nesvan, Geraldine, 1445
Neubuerger, Karl T., 955
Neufeld, Elizabeth F., 874
Neuhauser, G., 948
Neville, Donald, 1234
Newfield, Melanie U., 1104
New York. Mental Hygiene Department, 1433
Nickey, Laurance N., 702
Nielsen, Johannes, 1042
Nirje, Bengt, 1341
Nishimura, Hideo, 1072
Nishmi, Moshe, 725
Nolen, Patricia, 1211
Norman, R. M., 818
Normand, I. C. S., 769
North, A. Frederick, Jr., 685
Novak, K., 726
Novikova, L. A., 1066
Nuyts, J. P., 928, 942
Nyhan, William L., 816, 817, 822, 823

- O -

Oberle, Mark W., 750
O'Brien, Donough, 830, 878
Ockerman, P. A., 847
O'Connell, Bridget, 738
O'Connor, N., 1105, 1154
O'Cuilleanain, T., 1198
O'Flynn, Margaret E., 791, 797
O'Gorman, G., 1146
Oh, William, 892
Ohlrich, Elizabeth S., 1109
Ohno, Susumu, 1057
Ojemann, Linda M., 920
Olin, Patrick, 825
Olsson, Torsten, 1326
O'Malley, Bert W., 858
Ong, Beale, 836
Opitz, John M., 1045
Oppenheimer, D. R., 906
Orandi, Mehdi, 700
Orlando, Robert, 1127
Orme, R. L. E., 741
Ornitz, Edward M., 1148
Orzack, Louis H., 1293, 1351
Oswald, Hedwig W., 1302
Otero, Elena, 1021
Otradovec, J., 727
Ott, John E., 1004

- P -

Padget, Dorcas H., 918
Paine, Richmond S., 660
Palo, Jorma, 777, 1008
Pampiglione, G., 843, 849
Papanicolaou, A. D., 1050
Park, Jeanne S., 1202
Park, Sang C., 932
Parmelee, Arthur H., Jr., 677
Parry, Wilfrid H., 693, 1432
Parsonage, M. J., 996
Partridge, J. W., 698
Pasley, Frank C., 1309
Pasquariello, Patrick S., 695
Passarge, Eberhard, 689, 1054
Patel, H., 758
Paton, Gillian R., 1062
Pawa, R. R., 893
Payne, Billy L., 634
Payne, Rudolph, 1145
Peakman, David C., 1004
Pearce, John, 953, 1038
Pearson, Douglas, 1096
Peck, J. R., 1130
Pedrini, Duilio T., 1161
Pennybacker, Joe, 905
Penrose, L. S., 663
Peper, Terrence J., 1272
Persky, Murray, 1460
Pertzelan, Athalia, 865, 866
Peters, A., 1033
Petersen, Ingemar, 674
Peterson, Linda R., 1268
Peterson, N. A., 786
Peterson, Robert F., 1268
Pfost, Philip, 1234, 1237, 1239
Philips, Irving, 625
Pieper, W. A., 1035
Pitt, D., 1385
Pivchik, Elizabeth C., 977
Plotkin, Stanley A., 695, 709
Pochanart, Prayot, 1234, 1237, 1239
Pochedly, Carl E., 744
Poley, J. R., 800
Pollack, Cecelia, 1315
Pomerance, William, 735
Ponces-Verge, J., 1089
Ponomarenko, A. M., 1039
Portray, Renee, 1199
Posener, Louis J., 772
Poser, Charles M., 655, 656, 657, 682, 982
Pow, C. G., 772
Prehm, H. J., 1206
Prescott, Jacquelin, 1295
Prieshof, L., 1311
Prod'hom, L. S., 1075
Pryor, Helen B., 925
Pullicino, J., 1457

- Q -

Quast, Wentworth, 1453
Quay, Herbert C., 1205

- R -

Rabor, Iole F., 892
Rahimtoola, Razia J., 770
Raivio, Kari O., 834, 835, 1069
Randeraat, A. Van Buul-Van, 1430
Raynes, Norma V., 1408, 1410
Reed, Sheldon C., 1473
Reeder, F. A., 994
Rees, Norma S., 1312
Refsum, S., 838
Reitan, Ralph M., 1190
Rendon, Roberto, 972
Renfrew, Catherine, 1484
Resibois, A., 875
Reye, Corrie, 1322
Reynolds, E. O. R., 764, 769
Reynolds, Phyllis C., 1143
Rhim, Johng Sik, 715
Rhodes, Leanne, 1236
Rice, Harold K., 1313
Richard, J., 875
Richardet, J. M., 788
Richards, Agnes A., 831
Richards, B. W., 612, 1026
Richards, E. H., 999
Rickards, D. F., 1037
Rickenbacher, J., 1077
Rimoin, David L., 859
Ritvo, Edward R., 1148
Roberts, Esther H., 1213
Robertson, David M., 813
Robertson, N. R. C., 764
Robinson, Arthur, 1004
Robinson, N., 957
Roche, A. F., 1079
Rodgers, Helen M., 916
Roelofs, Wendell L., 997
Rokkones, Torgeir, 829
Roseblade, Phyllis Shirley, 1201
Rosenberger, Peter B., 1093
Rosenblum, Gershen, 1478
Rosenblum, Jean K., 713
Rosenfield, Daniel, 637
Ross, Alan O., 1189
Ross, Leonard E., 1109
Rouillon, Annik, 615
Rowley, Vinton N., 1307
Roy, Michel, 886
Rozsa, Paul W., 1061
Rubinstein, J. H., 943, 947
Rudd, N. L., 1011
Ruebner, Boris H., 1053
Rule, D. C., 1338
Rundle, A. T., 1078
Rushton, D. I., 824
Rutherford, Gorin, 1241
Ruttenberg, Bertram A., 1176
Rutter, Michael, 978, 1149
Ruvalcaba, Rogelio H. A., 1031
Ryan, J. P. A., 1353
Ryan, Kenneth J., 672

- S -

Sabatino, David A., 1125
Sailor, Wayne, 1241
Sakamoto, Yasuki, 851
Salsinger, Harry, 1394
Salter, Ruth, 1215
Sams, Mona, 1275
Sanchez Romero, Gustavo, 1390
Sanders, Frances A., 1156
Sankar, D. V. Siva, 1061
Saper, Bernard, 1469
Sarason, Seymour B., 651
Sato, Tetsuo, 826
Saunders, R. A., 821
Scappaticci, Susi, 844
Schalling, Daisy, 1166, 1167
Schamber, Walter F., 700
Scheerenberger, Richard C., 1357
Scheinberg, L. C., 863
Schell, Robert E., 1465
Schenker, Steven, 887
Scherer, Felicitas, 1468
Schimke, R. Neil, 811
Schimschock, James R., 920
Schlanger, Bernard B., 1104
Schmid, E., 1009
Schmidt, Leo J., 1489
Schmitz, Willi, 1224
Schochet, Sydney S., Jr., 751, 965
Schoelkopf, Ann M., 1127
Schoengold, Ronald J., 709
Schonberg, S. Kenneth, 748
Schucman, Helen, 1179
Schulman, Jerome L., 1158
Schulte, F. J., 677
Schultz, Marvin A., 677
Schwalb, E., 1123
Schwalb, Rita B., 1123
Schwartz, Robert, 754

Sclare, A. B., 1459
Scott, Charles I., 1010
Scrimshaw, Nevin S., 901
Scriver, Charles R., 820
Sechrest, Lee, 1273
Sedgwick, Robert P., 961
Seegmiller, J. Edwin, 814, 815
Segar, William E., 914
Seil, Frederick J., 965
Seip, M., 827
Selvaggio, Vito J., 1470
Sengstock, Wayne L., 1212
Senn, Milton J. E., 1217
Serstnev, E., 896
Servit, Z., 988
Serwer, Blanche L., 1312
Sever, John L., 705, 716
Shaanan, A. I., 1418
Shagass, Charles, 1062
Shaheen, Eleanor, 888
Sharp, Harvey L., 964
Shaw, Kenneth N. F., 795, 879
Shear, Carol S., 1382
Sheila, M., 701, 1403, 1488
Sheldon, Philip, 905
Shif, Z. I., 1203
Shih, Vivian E., 831
Shiina, Shin-Ichi, 851
Shin, Myung H., 914
Shontz, Franklin C., 1324
Shotwell, Anna M., 1277
Shulman, Kenneth, 1067
Sidman, Murray, 1093
Siegel, Ernest, 1404
Siegel, Louis, 1159
Siegelman, Ellen Y., 1236
Sigurdson, W. E., 1387
Silverman, William A., 1076
Simonson, Maria, 895
Sinclair, John C., 1076
Sinick, Daniel, 1304
Siqueland, Marian L., 1194
Skakkebaek, N. E., 1002
Skoric, L., 896
Slater, E., 1017
Slinn, Robyn F., 706
Smith, Corinne Roth, 1223
Smith, David W., 940
Smith, Edith, 1141
Smith, G. F., 946
Smith, George F., 1043
Smith, Robert M., 622
Smithells, R. W., 934
Snyder, R. D., 923
Soiu, Johnny, 1446
Soldatovic, Bogosav M., 1049
Solomon, Amiel H., 1080
Son, Choon D., 784
Song, A. Y., 1299
Song, R. H., 1299
Soos, A., 897
Sotos, J. F., 919
Sourander, Patrick, 837
South Dakota. Vocational Rehabilitation Division., 1289
Spain, Bernadette, 1372
Spastics International Medical Publication, 653
Spector, Ronald, 797
Spence, B., 737
Spradlin, Joseph E., 1126
Sprague, Robert L., 1306
Springfield, Lynn, 1160
Srikantia, S. G., 891
Srivastava, D. K., 743
Stadlan, Emanuel, 964
Stahl, A., 1003
Stair, Ernest R., 1405
Stamm, John M., 1128
Stanton, H. R., 975
Stare, Fredrick J., 637
Starr, John G., 694
Steen-Johnsen, J., 827
Steinberg, Arnold D., 1333
Steinman, Warren M., 1271
Stephen, Elspeth, 1184
Stephenson, J. B. P., 801
Stephens, Will Beth, 1130
Stern, Evelyn, 677
Stern, J., 828
Sternlicht, Manny, 1159
Stevens, D. L., 992
Stevens, Godfrey D., 1204
Stevens, Harvey A., 1421
Stevenson, Anna Bacon, 1399
St. Geme, Joseph W., Jr., 700
Stickler, Gunnar B., 914
Stocker, Beatrice, 1312
Stoddard, Lawrence T., 1093
Stokes, Joseph, Jr., 714
Stoneburner, Robert L., 1242
Stone, W. E., 993
Strang, L. B., 769
Strong, William B., 937
Strunk, D. L., 1383
Studley, William M., 1242
Sturdivant, Catharine, 1447
Summitt, Robert L., 1046
Suomalainen, E., 1008
Susselman, Samuel, 1147
Susskind, Dorothy J., 1270
Sussman, Leonard, 932
Sutnick, Alton I., 1029
Svanberg, Borje, 825
Svennerholm, Lars, 837
Svenningsen, N. W., 1070
Swank, Harold O., 1358
Swanson, David W., 1139
Swanson, Phillip D., 921
Sweetman, Lawrence, 816
Sword, Charles, 1336
Sylvester, P. E., 1078
Szeinberg, A., 779
Sznajder, Norma, 1021
Szurek, S. A., 623, 1480

- T -

Tada, Keiya, 826
Taft, Lawrence T., 967
Takano, Kiichi, 1072
Talkington, Larry W., 1361
Taller, Elisabeth, 812
Tamer, Akram, 753
Tanimura, Takashi, 1072
Tannenbaum, Abraham J., 1209
Taper, H. S., 956
Taybi, H., 944
Taylor, Ann, 1144
Taylor, Kenneth M., 1062
Taylor, Raymond G., Jr., 776
Teague, Fay M., 1183
Teichgraber, P., 864
Temple, Simon, 1124
Temtamy, Samia A., 1047
Ten Bensel, Robert W., 700
Teplick, J. George, 902
Teramo, K., 1069
Teska, James A., 1242
Tews, J. K., 993
Thelander, Hulda, 925
Theslenco, Luisa, 1020
Thornton, W. N., Jr., 1071
Throne, Frances M., 1158
Thulin, Barbara, 955
Thuline, Horace C., 935, 1031
Tighe, Thomas J., 1267
Timpano, Doris M., 1259
Tips, Robert L., 690
Tito de Moraes, Maria P., 1370
Tizard, Barbara, 1090
Tizard, J., 1412
Tolosa, Maria E., 1413
Tondeur, M., 875
Torres, Fernando, 998
Towbin, Abraham, 760
Traub, Remee, 716
Tri-state Comprehensive Planning and Implementation Project for Mental Retardation, 626
Trojaborg, W., 679
True, C. W., 947
Truex, Raymond C., 652
Truskowsky, Marie, 888
Tsuchiya, Shigeru, 851
Turner, Mary, 1287
Twomey, J., 704

- U -

Uba, A., 1180
Ucer, Erol, 1310
Uhlendorf, B. William, 815
Ulivelli, A., 724
U. S. Health, Education, and Welfare Department, 981, 1348
Children's Bureau, 730

- V -

Vague, J., 1003
Van Der Hagen, C. B., 838
Van Haegenborgh, J., 956
Van Leeuwen, G., 1392
Van Leeuwen, H., 1374
Van Velzen, W. J., 1255
Vanier, Jean, 628
Vas, C. J., 996
Vaughn, Mary A., 892
Vedrenne, J. M., 1135
Veerman, J., 1373
Veldman, Donald J., 1130
Vella, J. P., 1367
Vellan, J. E., 827
Venn, Grant, 1347
Victorin, Lars, 1326
Vignolo, L. A., 1165
Virginia State Department of Health, 1207
Vislie, H., 647
Vliegenthart, W. E., 1455
Vocational Rehabilitation Department of the District of Columbia, 1302, 1360
Vogel, William, 1092, 1264
Volzke, E., 980
Von Schoulz, B., 1008
Vvedenskaya. I. V., 680

- W -

Wachtel, Andrew S., 1377
Wadia, Rustom S., 1010
Waisman, H. A., 792, 898
Waksman, J., 1020
Walker, Frank A., 1032
Wallace, A. C., 812
Walshe, J. M., 839
Waltz, Thomas A., 1068
Warburg, Mette, 1052
Ward, Paul H., 1000
Ward, T. F., 1153
Warner, Robert, 797
Watson, L., 857
Webster, John D., 1355
Weddleton, Richard F., 997
Wedell, Klaus, 1084
Weerdt, Ch. M., 734
Weibel, Robert E., 714
Weilbaecher, Robert G., 810
Weintraub, Frederick J., 1346
Weiss, Charles F., 1308
Welch, J. Philip, 811
Welman, A. J., 908
Wenner, Waldemar H., 677
Werner, Barbara, 729
Werry, John S., 1306
Whelan, Donald T., 820
Whisler, K. E., 993
White, James G., 964
Wiener, Gerald, 1218
Wigglesworth, J. S., 764, 769
Wildervanck, L. S., 938
Wilfert, Catherine M., 719

Williams, Charles F., 1256
Williams, Cyril E., 1137
Williams, P., 1262
Williams, P. M., 818
Williamson, Malcolm, 797
Wimberger, Herbert C., 1462
Wing, Lorna, 1150
Wingate, D. L., 757
Winick, Myron, 894
Winter, G.B., 1338
Witover, Steven, 748
Wolf, Enid G., 1176
Wolf, Lewis, 735
Wood, Tom, 1395, 1443
Woolf, L. I., 846
Woollacoot, S., 1038
Worley, Lee, 753
Worth, Lo Anne L., 1291
Wranne, L., 793, 1005
Wright, Beatrice A., 1324
Wright, E.T., 794
Wright, Nathan L., 1046
Wright, Stanley W., 819
Wu, Paul Y. K., 892
Wurth, Charles W., 1122

- Y -

Yanagihara, T., 787
Yasuda, Mineo, 1072
Yen, S. S. C., 672
Yokoyama, Yoshimasa, 826
Yoshida, Toshio, 826
Young, Wesley O., 1336
Yssing, Minna, 1002

- Z -

Zacchello, F., 844
Zakrzewski, Jeffrey, 1424
Zalen, Gerald W., 1423
Zechner, Gerd, 871
Zellweger, Hans, 872, 1024
Zelson, J., 1019
Zemskaya, A. G., 985
Zetterstrom, Rolf, 825
Zigler, Edward, 620
Zilke, Y., 1015
Zimmerman, Stuart, 1333
Zislina, N. N., 1066
Zsadanyi, O., 897

SUBJECT INDEX

The subject index has been compiled on the basis of abstract numbers rather than pagination.

Abortion
  fr oral contraceptives, 1059
  in placenta abruptio, 762
  fr toxoplasma infection, 692
Accident
  burns,
    epilepsy and, 999
    w/ meningitis, hydrocephalus, and neuroblastoma, case study, 772
  head injury,
    neurological disorders fr, 775
  in pregnancy,
    fetus and infant damage in relation to, 773
Acetone
  in urine in pregnancy, infant IQ and, 752
Achievement (See under Education; Education, special)
Acid-base equilibrium
  of amniotic fluid,
    fetal anoxia and, 759
    newborn disorders and, 1074
Acidosis
  in newborn,
    lung disorder and, 1075
    treatment of, 1076
1-Adamantanamine
  in rubella treatment, 705
Adaptive behavior (See Behavior)
Adjustment/Personal—social
  of adolescents,
    recreation therapy program and, 1437
  adult,
    childhood influences and, 1131
    prediction of, w/ actuarial method, 1157
  assessment of, in a psychologic evaluation, 1182
  in community, 1279
  development of, 1280
    behavior modification and, research review and analysis, 1263
    w/ operant conditioning techniques, 1314
    preschool curriculum guide, for physically handicapped and/or neurologically impaired, 1214
    role of behavior modification techniques in, 1267
    role of nutrition education in, 1244
    therapy and, 1310, 1319
  emotional problems and, of MR, 1140
  environment effect on, 1264
  of high school dropouts, 1143
  inst.,
    grandmother—buddy system and, 1423
    mothering in relation to, 1425, 1426
    role of material possessions in, 1132
    social development program, effects of, 1286
  long-term, of MR in Connecticut, 1388
  music as tool in, 1447
  to nursery school, maternal separation and, MR c/w normal, 1141
  operant conditioning in relation to, 1419
  parent, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1463
    assessment of, w/ MMPI, 1461
    child abuse and, 1459
    emotional problems and, 1140
  perceptual-motor impairment and, 1084
  of PKU child and parents, 796, 799
  sexual, of SMR, contraception and, 1133
  of siblings of MRs, 1463, 1464
  social competence,
    prediction of TMR, 1179
    social club formation in development of, 1444
  training in,
    self help and social skills, 1260
  vocational,
    in Canada, program for, 1305
    conceptual thought and, 1129
    employability and, 1298, 1302
    training program for,
      in Ohio, 1294
      in South Dakota, 1289

Abbreviations:

b.i.	brain injury, brain injured
CNS	central nervous system
CP	cerebral palsy
c/w	compared with
EMR	educable mentally retarded
ep.	epilepsy
fr	from
inst.	institution, institutionalized
MR	mentally retarded
PMR	profoundly mentally retarded
SMR	severely mentally retarded
spec. ed.	special education
TMR	trainable mentally retarded
w/	with

Administration (See under specific program)
Adolescence/Adolescent
b.i.,
educational needs of, 1227
communication stimulation program, for blind PMR, 1240
conformity behavior in, evaluation of, 1128
hepatitis encephalopathy in,
exchange transfusion for, phasmapheresis in, 748
social adjustment of,
recreation and, 1437
social and communication behavior in, 1126
societal attitudes toward, 631
Adoption
early maternal deprivation and, of MR child, 1144
Adult
activities, education, and employment of, 632
adjustment of,
prediction of, w/ actuarial method, 1157
Alexander's disease in, case report, 965
cognitive defects of non-CP MR, 1167
emotionally disturbed,
treatment of, w/ film and group therapies, 1310
language development program for,
effects of, 1230
perceptual-constructive performances of non-MR CP w/ early b.i., 1166
personality, intelligence, and mental health, childhood influences and, 1131
testing of, validity of WRAT in, 1161
Agencies (See also specific agency)
private, motive for creation of, 1390
Alabama
programs for MR in, 1384
Alexander's disease
in adult, case report, 965
Amaurotic familial idiocy (See Lipoidosis, cerebral)
Ameba
meningoencephalitis fr, in Czechoslovakia, 726
Amino acids (See also Metabolism; specific headings)
in brain,
effect of excess phenylalanine and tyrosine on, 786
in epilepsy, 993
dibasic,
metabolic error of, genetics of, 820
in eye in homocystinuria, 809
metabolism of,
disorders of, inborn,
detection and prevention, 804
eye disorder and, 821
hypermethionemia and, 831
screening for, 876, 877, 879
Amniography (See Radiography)
Amnion and Amniotic fluid
acid-base equilibrium of fluid of,
fetal anoxia and, 759
newborn disorders and, 1074
in diagnosis of fetal disorders, 736
electrolytes in fluid of,
pregnancy prognosis and, 1073
infection of, mortality and morbidity in, 718
in prenatal genetic defect detection, 667
sodium transport by,
fetal hydramnios and, 1071
spectrophotometic analysis of,
Rh hemolytic disease and, 735
Amyotrophy
MR and, 962
Anemia
in hydrops fetalis, 746
in newborn,
glutathione peroxidase in relation to, 742
Angiography (See Radiography)
Anoxia
brain damage fr,
in fetus and newborn, 760
convulsions fr, in infants and children, 987
in fetus,
amniotic fluid pH and, 759
fr placenta disorder, 761, 762
radiation and, 763
in newborn,
EEG and, 677
lung disorder and, 1075
respiratory distress syndrome, 765, 768
treatment of, 1076
Antibiotic
PKU Guthrie test and, 782
Antibody
anti Dγ-globulin, in protection against Rh-hemolytic disease, 730, 731, 732, 733, 734
to mumps virus, fr vaccination, 693
to rubella, in United States female population, 716
in virus infection diagnosis, 719
Antigen
Australian,
Down's syndrome and hepatitis in relation to, 1029
leukemia and, 729
Apex clubs
in MR work,
in Australia, 1389
Apgar score (See Infant)
Appliances
in dentistry for the MR, 654
mobile bath, 1318
multiple-purpose crib, 1326
water pillow,
for hydrocephalic children, skin ulcer treatment with, 916
Arachnodactyly
heart disorder and, 851, 852
thumb sign in diagnosis of, 853
Architecture
community center for SMR, 1374
mental health facility, 1377
MR and, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649
residential facility, changes in, 1414, 1469
Arizona
education,
prevocational evaluation program, 1283
Art
therapy for MR, 1316
Arylsulfatase
deficiency,
in metachromatic leukodystrophy, 952
Ascorbic acid
in dietary treatment of gargoylism, 873
Asphyxia (See Anoxia)
Association for Childhood International
malnutrition and MR review, 633
Ataxia
Friedreich's,
diabetes and heart disease in, 959
nerve electron microscopy in, 958
spinal cord biochemistry in, 957
telangiectasia,
pathology of, 961
"At risk" infant (See Infant)
Attitudes
of attendants,
child care practices in residential services and, 1408, 1410
of MR,

388-622 O - 70 - 13

adolescents, effects of normal and MR peers on, 1128
educational planning and, 1220
of parents,
of MR children, prognosis and, 615, 1137
of preschool physically handicapped and/or neurologically impaired,
curriculum guide for development of, 1214
of public,
toward employment of MR, 1303, 1304
toward MR, 626, 627, 628, 631, 651, 1379
in Maryland, 1378
in United States, 1350
of teacher,
student achievement level and, 1488, 1489
teaching of, to MR, w/ educational films, 1258
Audiometry (See Hearing)
Australia
community programs in, 1389
for multiply-handicapped, 1385
residential services and, 1356
XYY chromosome and antisocial behavior in, 1040
Autism/Non-verbal child
behavior modification program for, 1274
parents as behavioral engineers in, 1465
characteristics of,
free-play behavior, analysis of, 1175
perceptual, cognitive, and speech handicaps in, 1150
perceptual inconstancy in, neurophysiologic mechanisms in, 1148
speech, recall patterns and, 1106
stereotyped behavior in, 1151
diagnosis of, 1156
education of, 1275
free-play behavior in, recording of, 1175
phenomenological aspects of, 1152
research on, 1149
social responses in, visual input and, 1154
sound acceptance in measurement of, 1176
spec. ed. for, 630
speech development in,
case report, 1153
program for, 1276
Autonomic nervous system
in cerebral gigantism, 923

Bacteria
meningitis fr, treatment and neurological sequelae of, 723
Neisseria catarrhalis, meningitis fr, treatment of, 724
Pseudomonas, meningitis fr, 772
Barbiturate
derivatives, for sedation in parturition, effect on newborn, 755
Batten's disease (See Lipoidosis, cerebral)
Battered child syndrome (See Child; Infant)
Behavior
adaptive,
development of, in sheltered workshops, 1296
environmental effect on, 1264
sensory-motor training effect on, 1277
affective,
language and, 1120
anti-social,
large Y chromosome and, 1042
XYY chromosome anomaly and, 1040, 1044
in child, 1043
of autistic children, neurophysiologic mechanisms of, 1148
of b.i. children,
control of,
program for control of,
in classroom, 1232
w/verbal conditioning procedures, 1315
communication, in MR adolescents, 1126
concepts,
teaching of, w/ educational films, 1258
disorders of,
in b.i. child, coordination of education and treatment for, 1224
chromosomal anomalies and, 1054
in deprived children, 1209
handicaps and, 1137
poisoning and, 1138
epilepsy and, 983
in galactosemia,
diet effect on, 833
in homocystinuria, diet effect on, 807
hyperactive,
analysis of, of inst. SMRs, 1090
drug treatment of, 1306
in hypoglycemia, pancreas and, 836
of infants, CNS function and, 1087
maladaptive,
in children in France, 615
diagnosis and treatment of, in MR, 1145
of emotionally disturbed children,
psychoactive drugs in treatment of, 1309
in malnutrition, 897, 899, 900
maternal diet and, 895, 901
modification of, 1270
child-care worker in, 1470
educational implications of, 1266
by milieu teaching, w/ inst. MR, 1221
model for community setting, 1267
by operant conditioning, 1265, 1273, 1274, 1314
w/ multiply handicapped, 1313
w/ SMR, 1110
parents role in, 1465, 1466
in PMR female, 1272
punishment and, in PMR boy, 1269
research review and analysis, 1263
w/ verbal conditioning, in b.i. boys, 1315
of mother and MR child, 1462
MR and, 623
Zigler's theory and, 621
personality,
characteristics of children w/ functional articulation disorders, 1312
in PKUs, diet effect on, 798
research on, 1263
of schizophrenic children c/w MR, 1147
self-mutilating,
control of, w/ positive reinforcement, in SMR boy, 1268
in Lesch-Nyhan syndrome, 813, 814, 817
sexual, SMR, 1133, 1134, 1135
social,
curriculum needs for training in, 1197
in MR adolescents, 1126
conformity and, 1128
stereotyped,
age and time of day effects on, in inst, MRs, 1136
in autistic children, 1151
drug treatment effect on, 1306
stereotyped and self-stimulating,
inst. MRs c/w non-inst. MRs, 1136
vocational,
job success and, 1299
Belgium
spec. ed.in, 1199

Bibliography
on dental care for the MR, 654
developmental medicine and child neurology, 653
Bielschowsky-Jansky disease (See Lipoidosis, cerebral)
Biguanide
derivatives,
in diabetes treatment, toxicity to fetus and newborn, 754
Bilirubin (See also Hyperbilirubinemia)
in amniotic fluid,
Rh hemolytic disease diagnosis and, 736
Birth defects (See Infant)
Birth-weight (See Infant)
Blind MR
communication stimulation programs for, 1240
intellectual assessment of, 1192
Blood (See also Rh incompatibility)
acids in, in excess,
methylmalonic acidemia and, 825
amino acids in, in excess,
in cystinosis,
diet effect on, 827
calcium in, in excess in infants, 885
vitamin D excess and, 884, 886
carboxyhemoglobin in, hemolytic disease and, 745
glucose,
in fetus, pregnancy disorder and, 1069
groups,
ABO and Rh, hemolytic disease and, 731, 733
ABO incompatibility,
birth-weight and, 743
hemolytic disease and, 744
chromosomal anomalies and, 1055
hemolytic disease and,
carboxyhemoglobin in relation to, 745
exchange transfusion in, contraindication for, 747
histidine in, in excess,
brain injury and, 818
homocystine and methionine in, in homocystinuria, 806, 807
in metabolic error screening programs, 880
methionine in, in excess,
in normal infant, 830, 831
phenylalanine in, in excess, diet and, 792
pipecolic acid in, in excess, nervous system and liver disorders in relation to, 812
uric acid excess in,
2-ethylamino-1, 3, 4-thiadiazole effect on, 816
neurological disorders in, 813, 814
Blood vessels
congenital anomalies, 937
degeneration,
in Leigh's necrotizing encephalomyelopathy, 956
disorder,
of aorta, in hypercalcemia, 885
smoking effect on placental,
fetus and newborn response to, 756
Body heat
exchange transfusion effect on, 738
Bogaert's disease (See Leukoencephalitis)
Bone
disorder,
in XYY chromosome anomaly, 1043
joints, dysmorphogenesis of, congenital, 940
Bourneville's disease (See Sclerosis, tuberous)
Brain (See also related headings)
amino acids in,
in epilepsy, 993
excessive phenylalanine and tyrosine effect on, 786
anomalies,
Arnold-Chiari malformation and basilar impression in relation to, 924
in holoprosencephaly,
convulsions in, 920
endocrine dysgenesis and, 919
in Rubinstein-Taybi syndrome, 947, 948
cephalic control, environmental effect on,
in infants, 1088
cerebellum,
atrophy of, in demyelinating leukodystrophy, 955
cerebral dysfunction, movement deficits and, 1083
disorders,
fr anoxia,
in fetus and newborn, 760
in fetus in placenta disorder, 761
in ataxia telangiectasia, 961
degenerative, in infants, 963
diabetes, MR and, 969
diagnosis and treatment of, 1087
in diphenylhydantoin poisoning, 757
in dysmorphogenesis of joints, 940
EEG and, 674, 849
in children, 679, 680
in fatty acid metabolic error, 837
in galactosemia, 832
in glycolipid metabolic disorder, 842
in hepatitis, exchange transfusion for, 748
in histidinemia, 818
in hydranencephaly, 921, 922
in hyperglycinemia, 824
in Klinefelter's syndrome, 1039
in kuru, 960
in lead poisoning, 749, 751
in children, 750
in malnutrition, 894, 895, 898, 899, 900, 901
in metachromatic leukodystrophy, 954
fr mumps infection, hydrocephalus and, 909
in newborn, etiology and prognosis of, 774
in Norrie's disease, 1052
psychiatric disorder in children in relation to, 978
in respiratory distress syndrome, 765
in thiamine deficiency, 887
in thyroid deficiency, 864
in tuberous sclerosis, radiography of, 902
hydrolase in, in Gaucher's disease, 847
learning and, 1115
lipids in, in PKU, 787
scanning,
by ultrasonography, 673
tissue,
infectivity of, in Creutzfeldt-Jakob disease, 966
tumor,
neurological testing for, 908
warts, 939
Brain injury (See also Cerebral Palsy; Epilepsy; & Education, special)
behavior of child w/,
control of, 1315
diagnosis of,
conceptual problems in, 1187, 1189
education and treatment of child w/,
coordination of, 1224
education of adolescent w/, 1227
education of child w/,
reading program for, 1232
EEG in determination of, 679, 680
fr *Herpes simplex* infection, 698
in hypoglycemia, in at risk-infants, 834, 835
in inborn metabolic errors, 804, 882
language disorder in, 1093
minimal,
characteristics of, 1123
education of child w/, 1172
perception and, 1166

MR and, 1187
psychological evaluation in, 1193
prognosis of, antecedent conditions in, 776
psychological testing in, 1190
discriminative validity of, 1191
in Rh iso-immunization of fetus and newborn, 730
socioeconomic factors in, 970
sorting behavior in, 1165
treatment of child w/, Doman-Delacato methods for, 1321
visual ground discrimination in, 1165
Byler disease
genetics and clinical aspects of, 1053

Calcium
in blood, in excess, 885
vitamin D excess and, 884, 886
California
university career tryout project, 1391
Canada
Down's syndrome in,
infectious hepatitis and, 1016
nursery education for child w/ special needs, 1216
residential care in, 1415
vocational training and employment of the disabled in, 1305
youth volunteers in, 1472
Cancer
chromosomal anomalies and, 1054
Carbon dioxide
tension, in mother,
newborn disorders and, 1074
Carbon monoxide
metabolism of,
in hemolytic disorders, 745
Cardiac disorder (See under Heart)
Central nervous system (See also Autonomic nervous system; Brain)
anatomy, histology, and function of, 652
development of,
behavior during first year of life and, 1087
in early childhood, 683
sensory stimulation effect on, 1086
in utero, 683
disorder,
in ataxia telangiectasia, 961
socioeconomic factors in, 970
inclusions in,
in metachromatic leukodystrophy, 954
viral infection of, 722
Cephaloridine
in bacterial meningitis treatment, 723
Cerebral gigantism (See Gigantism)
Cerebral lipoidosis (See Lipoidosis, cerebral)
Cerebral palsy (See also Brain injury)
age of walking and, 1081
clinic program for management of child w/, guidelines for, 1335
cognitive assessment of non-MR CP adults, 1167
education,
in Scotland, 1225
incidence of, in inst. MR children, 1184
intelligence, development of, 1186
minimal,
physical therapy for, 1083
motor performance of non-MR adults, w/ early brain injury, 1166
perceptual performance of non-MR adults, w/ early brain injury, 1166
occlusion in, survey in Japan, 1340
oral diseases in,
incidence in Idaho, 1336
treatment,
neuro-developmental approach to, 1322
Cerebroside (See Sphingolipid)
Ceroid
metabolism,
disorder, progressive neurological disorder and, 964
Chemical compound (See specific headings)
Child
abuse,
psychosocial aspects of, 976, 1459, 1482
antisocial behavior in,
XYY chromosome anomaly and, 1043
autistic,
education of, 630
behavioral problems and MR in,
in France, 615
b.i.,
EEG in determination of, 679, 680
prognosis of,
antecedent conditions in, 776
burns, meningitis, hydrocephalus, and neuroblastoma in, case study, 772
convulsions in,
cerebral anoxia in etiology of, 987
diphenylhydantoin poisoning in, 758
disadvantaged Negro, assessment of effects of language stimulation program for, 1169
EEG and, 674
epilepsy in,
centrencephalic, EEG pattern in, 980
EEG and, 984
prognosis in relation to, 986
surgery in relation to, 985
failure-to-thrive, 977
hepatitis encephalopathy in,
exchange transfusion for, phasmapheresis in, 748
Herpes simplex infection in,
mortality of, 699
in hospital, effects of psychiatric counseling on, 1282
language development in, speech therapist and, 1483
lead poisoning in, 750
etiology, management, and prevention, 749
learning and neurological disorders in,
screening for, physician role in, 666
learning in,
socioeconomic factors and, 970, 971, 972, 973, 974, 975
malformed,
community responsibility to, 1366
malnutrition in, 634, 635, 636, 637, 638, 639
medical care of, in Poland, 688
mumps vaccination of, side effects of, 693
neurological disorders in, 660, 661
clumsiness and, 665
neurology, bibliography on, 653
psychiatric disorders in, brain dysfunction and, 978
with psychomotor and language disorders,
EEG in, 678
psychotherapy w/, 1480
rubella vaccination of, 712
scholastic achievement of,
prematurity and, 1218
w/ special needs, nursery education for, in Canada, 1216
varicella infection in,
mortality of, 700
Chimpanzee
Down's syndrome in, 1035

spongiform encephalopathy in, after inoculation w/brain material from Creutzfeldt-Jakob disease, 966
Chloramphenicol
in *Neisseria catarrhalis* meningitis treatment, 724
Chloride
in amniotic fluid,
pregnancy disorder and, 1073
Chlorpromazine
effects of prolonged treatment w/,
on rats, 1307
Cholestasis
in Byler disease,
genetics and clinical aspects of, 1053
in newborn,
as new syndrome, 838
Cholesterol
metabolism in hypothyroidism, thyroxine effect on, 860
Chromosomal anomaly (See also Genetics; specific disorders)
autoimmunity and, 1027
blood groups and, 1055
cancer and behavior and developmental abnormalities in relation to, 1054
deletion,
in *cri du chat* syndrome, 1000
deoxyribonucleic acid labeling and, 1006
18, immunoglobulins and, 1010, 1011
dermatoglyphics and, 663
diagnosis of, 681
etiology,
agents in, 1058
cyclamate in, 1060
LSD and, 1062, 1063
LSD and UML-491 in relation to, 1061
oral contraceptives in,
abortion and, 1059
gonadal dysgenesis and short stature in relation to, 1048
leukemia and, 1028
monosome,
21, case study, 1012
prenatal detection of, 667
amniotic fluid in, 736
research on, 1056
ring,
case study, 1008
18, immunoglobulins and, 1010
satellites,
on chromosome 17, radiation and, 1009
on D chromosome, gonadal anomalies and, 1003
sex,
large Y, psychiatric disorders and, 1042
XO/XX, gonadal dysgenesis and pseudo-pseudohypoparathyroidism, in, 1049
XXXX, MR and, 1041
XYY, anti-social behavior and, 1040, 1044
in child, 1043
translocations,
C/G, in infant and father, 1002
D/D, balanced, 1004
D/E, in mother and sons,
autoradiography of, 1007
(4q-,Cp+), 1001
trisomy,
eye disorders in, 1051
G, Down's syndrome and, 1013
G, partial, Down's syndrome and, 1019
13-15, immunoglobulin deficiency in, 1005
22, clinical aspects of, 1036
Chromosome
egg cytoplasm in expression of, 1057
Church (See Religion)
Classification (See also Mental Retardation)
of MR, intelligence and, 619, 1180
Cognition (See also Creativity; Perception)
affective behavior and, 1120
conceptual thought,
social-occupational adjustment and, 1129
deficits in,
in autism, 1150
in b.i., 1191
perception and,
disorders of, in disadvantaged, 1209
treatment of problems of, in disadvantaged, 1118
in PKU, diet effect on, 797
thought processes, distortion of, in psychotic MR, 1145
Communication (See also Language; Psycholinguistic abilities; Speech)
development of,
environment and, 1124
verbal conditioning and, 1107
operant conditioning program and, w/ inst. MR, 1265
disorders of, 1123
in child, speech therapist and, 1483
in MR and pseudoretarded, 1122
evaluation of, in MR adolescents, 1126
program for stimulation of, for blind PMR, 1240
Community programs (See also Programing)
for aged MRs, 1361
in Australia, 1356, 1389
camping, 1441
day,
description of, 1442
summer, counselor attitude in relation to effectiveness of, 1438
psycho-social development and, 1440
residential, physical development and, 1439
in Canada,
nursery education as, 1216
youth volunteers in, 1472
for children w/ malformations, 1366
clinical psychologists in, 1478
clinic program for CP child,
guidelines for, 1335
day-care centers,
architectural planning and, 646
in Scotland, 1371
in Denmark, 1327, 1375
for employment of disabled,
recommendations for, 1304
in England,
residential care demand and, 1372
expansion of, 1188
Eye Clinic for MR, in Denmark, 1327
facilities for,
financial support for construction of, 1348, 1349
foster grandparents, in Ohio inst. for MR, 1393
Head Start, health services and, problems in, 1392
in Illinois, 1357
in Ireland, 1352, 1353
Kennedy Center Diagnostic Clinic, 1388
in Maryland, 1378
Project Follow Through, 1394
public health nurse in, 1365
rehabilitation center services as, 1395
for re-integration of MRs, 1386
religious, in Kentucky, 1401
screening programs,
for lead poisoning in children, 750
for metabolic errors, 878, 880
aminoacidemia, 876, 877

PKU, 780, 781
in England, 783
public health agencies in, 669
for SMRs,
adapted living-community, 1373
community center, 1374
operant techniques use in, 1110
in Sweden, legislation and, 1341
therapy and nursery school program, for psychotic preschoolers, 1281
in United States, 1350, 1351
University Affiliated Facility, in Florida, 1380, 1381, 1382, 1383
in Wisconsin, in poverty areas, 1359
Computer
in EEG analyses, 674
in epilepsy research, 981
Conditioning (See Learning)
Congenital anomaly (See under Infant)
Connecticut
activities and service needs of MR of, 1388
employers' attitudes toward employing MRs, 1303
Kennedy Center Workshop of the Parents and Friends of MR Children of Bridgeport, evolution of, 1293
residential recreational programs in,
soap box derby as, 1424
Consanguinity (See also Genetics)
in Byler disease, 1053
chromosome translocation (4/C) and, 1001
in cystathioninuria (non vitamin B_6 dependent), 826
in hyperphenylalaninemia, 788
in hyperprolinemia, 829
type 2, 828
in infant morbidity and mortality in Pakistan, 770
in Leigh's subacute necrotizing encephalomyelopathy, 956
in Lesch-Nyhan syndrome, 815
in myoclonus epilepsy without Lafora bodies, 992
in Noonan's syndrome (male Turner's syndrome), 1047
in recurrent intrahepatic cholestasis, 838
Contraceptives
oral, abortion fr, 1059
Convulsion (See also Epilepsy)
cerebral anoxia in etiology of, 987
disorders with,
in Mariana Islands, 994
physician's role in treatment of, 982
in holoprosencephaly, 920
in infants,
psychomotor development and, 979
3a,4,5,6-Tetra hydrosuccinimido[3,4-b]-acenaphthen-10-one in treatment of, 997
Copper
metabolism of, disorders of, inborn, penicillamine treatment of, 839
Counseling
genetic, 650, 690, 691
qualifications of counselor in, 1473
screening programs and, 670
guidance,
acceptance of, performance of MRs and, 1130
of parents, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1463
in Denmark, 1375
by home-visiting nurses, 1369, 1370
by Kansas Neurological Institute, 1387
need for, 1324
physician role in, 1481
psychiatric,
on pediatric medical ward, 1282
religious,
in Indiana, Kentucky, and Ohio, 1400
of siblings of MRs, 1463, 1464
vocational,
job success and, 1302
Creativity
art education and, 1246
art, mental development and, 1245
early childhood education and, 1217
Cretinism (See Hypothyroidism)
Creutzfeldt-Jakob disease (See Jakob-Creutzfeldt disease)
Cri-du-chat syndrome
larynx anomaly in,
infant cry in relation to, 1000
Crime
chromosomal aberration and, 1040, 1044
Crouzon's syndrome
ear, eye, and skull anomalies in, 929
genetics of, syndactylia and, 930
Culturally deprived (See Sociocultural factors)
Cyclamate
chromosomal aberration fr, 1060
Cystathionine
inborn metabolic disorders of, 826
Cystathionine synthase
in liver in homocystinuria, 806, 807
Cystine
metabolism of, disorders of, inborn, 827
Cystinosis
amino acids in blood and urine in,
diet effect on, 827
Cytomegalic inclusion disease (See Viruses)
Czechoslovakia
meningoencephalitis in, fr amebas, 726

Day care (See Community Programs)
Deaf MR (See also Hearing)
behavior modification and, 1274
education of,
practices and problems in, 1204
intellectual assessment of, 1192
De Lange syndrome
in chromosome translocation (D/D), 1004
in Negro, case study, 926
Delinquency/Delinquent (See Behavior; Crime)
Denmark
eye clinic for the MR, services of, 1327
materials laboratory, activities of, 1260
social services for families of MRs in, 1375
Dentistry
bird-headed dwarfism and, 928
dental care practices for MR, 1332, 1334
bibliography, 654
in Indiana, 1331
in Kentucky, 1331
in Ohio, 1331
premedication and supplemental analgesia, recommendations for, 1337
treatment and prevention of gum disease, 1339
dental status of CP children,
in Idaho, 1336
in Japan, 1340
dental status of MR children,
in Georgia, 1328, 1329, 1330
in inst., 1333
Down's syndrome and, 1021
Ellis van Creveld syndrome and, 927
restorative,
general anesthesia and, 1338

Deoxyribonucleic acid
labeling,
in chromosome deletions, 1006
Deprivation (See also Sociocultural factors)
failure-to-thrive and, 888, 889, 977
in residential care facilities in England, 1412
Dermatoglyphics
in chromosomal aberrations and MR, 663
in oral-facial-digital syndrome, 935
in Rubinstein-Taybi syndrome, 942, 943, 946
Development (See also specific areas of interest)
bibliography on, 653
chromosomal aberration (ring) and, 1008, 1054
in De Lange syndrome, 926
emotional/social,
in residential facility, grandmother-buddy system in relation to, 1423
evaluation of, MR and, 656, 657
in holoprosencephaly, 919, 920
longitudinal study of, 684
mental, 1084, 1117, 1220
age of walking and, 1081
art effect on, 1245
in autism, 1149, 1150
childhood effects on adult, 1131
in chromosome monosomy (21), 1012
cognition and motivation in, 620, 621
in congenital dyslexia, minimal brain damage, and developmental aphasia, 1123
in cystathioninuria, 826
in cystinosis, diet effect on, 827
emotional disorder effect on, 1146
employability and, arithmetic achievement as an index of, 1298
environment and, 1092, 1124, 1185
evaluation of, 1177, 1182
in blind and deaf, 1192
in galactosemia,
diet effect on, 833
in histidinemia, 818
in hydranencephaly, 921, 922
in hyperprolinemia, 829
in Lesch-Nyhan syndrome, 817
malnutrition effect on, 633, 634, 635, 636, 637, 638, 639, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901
infection and, 890
in new facial anomaly syndrome, 950
in PKU, diet effect on, 779, 797, 798
screening tests and, 780
in Rubinstein-Taybi syndrome, 942, 943, 944, 947, 948, 949
variant of, 945
in Smith-Lemli-Opitz syndrome, 932, 933, 934
socioeconomic factors in, 970, 971, 972, 973, 974, 975
in trisomy 22, 1036
viral encephalitis effect on, 1125
mental, physical, and social,
in hydrocephalus survivors, 910
microcephaly and, 925
neurological,
in children, 660, 661
evaluation of, 657
group screening for, 666
in newborn, 687
moral,
effects of spec. ed. on, in USSR, 1203
of offspring of PKU mothers, 784
physical,
age of walking and, 1081
cerebral dysfunction and, 1083
in cholestasis, 838
in chromosome monosomy (21), 1012
clumsiness, MRs c/w normals, 1082
CNS maturation and, 1087
of culturally deprived children, in a Head Start program, 1185
in cystathioninuria, 826
in cystinosis, diet effect on, 827
Doman-Delacato program and, w/ b.i., 1321
early b.i. effects on non-MR CP adults, 1166
environmental influences on, 1078
in galactosemia, diet effect on, 833
in hyperdibasic-aminoaciduria, 820
in hyperprolinemia, 829
of infant, factors in failure to thrive, 888, 889
mobility patterning effect on, 1320
of mongoloid children, 1079
neuro-developmental treatment and, 1322
in neurological disorders,
clumsiness in relation to, 665
of overactive, inst. SMRs, 1090
perceptual motor training, effects of, w/ inst. MR, 1223
of PMR, curriculum recommendations for, 1208
primitive reflexes,
disappearance of, environment effect on, 1088
motor control development in relation to, 1089
program for, 1273, 1291
physical education, 1250, 1251, 1252, 1254
reinforcement effects on, 1080
sensory-motor training effect on, 1222, 1277
summer residential camping and, 1439
tactual versus visual dominance, MRs c/w normals, 1085
therapy assistants in, 1471
therapy effect on, 1319
in trisomy 22, 1036
in Turner's syndrome, 1048
in XO/XX mosaicism, 1049
psychomotor,
in chromosome satellite syndrome, 1003
in chromosome translocation (4/C), 1001
disorders of, EEG in children with, 678
in failure-to-thrive, 977
infant convulsions and, 979
in metachromatic leukodystrophy, 952
of mongoloids, stimulation effect on, 1020
parental attitude in relation to, 1460
psychosocial,
camping programs and, 1440
summer recreational, 1438
of PKUs,
diet effect on, 802
parents and, 796
residential care and, 1406, 1418
social,
in autism, 1148, 1151, 1152, 1153, 1154, 1175
maternal deprivation and later adoption effect on, 1144
nurses in, 1474
poisoning effect on, 1138
schizophrenic children c/w MR, 1147
training guide for, 1207
Diabetes
drug treatment during pregnancy, effect on fetus and newborn, 754
mellitus,
in Down's syndrome, hypothroidism and, 1034
in Friedreich's ataxia, 959
MR and, 969

vocational rehabilitation and, in Georgia, 1284
work experience, at elementary level, 1287
religious,
in Indiana, Kentucky, and Ohio, 1400
in Kentucky, 1401
in Minnesota, 1402
for multiply-handicapped children, 1403, 1404
parental attitude and, 1405
research,
Doman-Delacato treatment success, antecedent factors in prognosis of, 776
educational films, w/ slow learners, 1258
on initial teaching alphabet, 1239
instructional materials, 1261, 1262
learning potential, school success and, 1179
mobility patterning activities, 1320
multi-graded c/w single-graded schools, 1219
Peabody Language Development Kits, 1169
w/ disadvantaged, 1239
perceptual-motor training,
w/ inst. MR, 1223
perceptual strengths, teaching methods and, 1231
physical education program, w/ TMR, 1250
practical implications of, 1206
programed instruction for reading, 1257
w/ culturally deprived, 1256
in Scotland, for CP, 1225
for slow learner,
industrial arts program for, 1243
programed instruction for reading, 1256
for SMR,
language stimulation and reading program for, 1236
language training, 1241
reading program for, effects of, 1229
in South Dakota, 1289
in Sweden, legislation for, 1376
for TMR, 1213
in industrial education, 1291
reading program for inst., 1228
in USSR, 1203
Egg
cytoplasma,
effect on embryonic development, 1057
Electroencephalography
behavior and, of autistic children, 1151
in b.i. determination, 679, 680
in ep., 984
centrencephalic, 980
prognosis and, 986
research and, 981
suppression-burst activity and, 990
surgery and, 985
in homocystinuria,
diet effect on, 807
in hyperprolinemia type 2, 828
of infants and children, 674
in Klinefelter's syndrome, 1039
in Lowe's syndrome and other inborn metabolic errors, 800
in metabolic disorders, 882
in MR and pseudo-MR, 1066
of MRs, 1065
in neurolipidosis, 843, 849
of newborn,
neurological disorders and, 675, 677
follow-up study, 676
periodic complex in,
in subacute sclerosing leukoencephalitis, 728
psychomotor and language disorders in relation to, 678
Electromyography
in homocystinuria, 808
Ellis-van Creveld syndrome
oral manifestations of, 927
Embryo
ectoderm neuroschisis in, spina bifida and, 918
insult to,
congenital malformations and, 1077
malformation of, 1072
maternal (egg) effect on, 1057
Emotional disturbance/Emotionally disturbed (See also Autism; Psychiatric disorder)
incidence of, in MR children, in India, 1142
intellectual deterioration and, 1146
maternal deprivation and later adoption and, follow-up study of effects of, 1144
MR and, 623, 1280
recognition and treatment of, in MRs and family, 1140
treatment of,
w/ film and group therapies, 1310
w/ psychoactive drugs, 1309
Encephalitis
meningo-, fr amebas, 726
pan-,
subacute sclerosing, measles vaccination and, 704
viral,
learning disabilities and, 1125
Encephalomyelopathy
subacute necrotizing (Leigh's), case study, 956
Endocrine system
disorder,
congenital, 863
in holoprosencephaly, 919
Down's syndrome and, 1030, 1031, 1032, 1033, 1034
intelligence and, 862
fr oral contraceptives, abortion and, 1059
Turner's syndrome and, 1050
in XO/XX mosaicism, 1049
England
community programs in,
residential care demands and, 1372
elementary special class in public school, 1201
MR in Wessex region of, 616
residential care in, 1407
PKU screening in, 783
programing for MR in, 1362, 1363
residential care in, environmental deprivation in relation to, 1412
Environment
brain characteristics and, 1115
childhood,
intelligence, personality, and mental health in adults in relation to, 1131
complexity of, stereotyped behavior and, in autistic children, 1151
growth patterns, 1078
maturation of the CNS in relation to, in high-risk c/w low-risk neonates, 1086
mental development and, 1092, 1124
in PKU intelligence level, 803
Environmental deprivation (See Deprivation; Socio-cultural factors; Socioeconomic factors)
Enzyme (See also specific enzymes)
in liver, in hypothroidism, 864
Epidemiology (See Mental retardation; specific disease)
Epilepsy (See also Brain injury; Convulsions)
accident incidence in relation to, 999
centrencephalic,
in children, EEG patterns in, 980
cerebral amino acids and, 993
comparative and cellular aspects of, 988
EEG and, 674, 680, 984
prognosis and, 986

suppression-burst pattern in, 990
surgery and, 985
incidence of, in inst. MR children, 1184
myoclonus,
etiology of, 991
without Lafora bodies, 992
neurology and psychology of, 983
neurophysiology of, 981
in newborn,
etiology and prognosis of, 774
physician in treatment of, 982
pseudoretardation and, 998
psychiatric disorders and, 989
school athletic program for child w/, 1254
in subacute sclerosing leukoencephalitis, EEG and, 728
treatment of,
w/ Diazepam, 995
w/ phenetruide, 996
Epinephrine
metabolism in homocystinuria and schizophrenia, 811
Epitestosterone
excretion by mongoloids, 1033
Erythroblastosis fetalis (See Rh incompatibility)
Erythrocytes (See Blood)
Erythromycin
in *Neisseria catarrhalis* meningitis treatment, 724
Estriol
determination,
in pregnancy management, 672
Ethnicity (See Sociocultural factors)
2-Ethylamino-1,3-4-thiadiazole
effect on Lesch-Nyhan patients, 816
Eye/Eye disorders
amino acids in,
in homocystinuria, 809
in aminoaciduria, 821
in chromosomal trisomy disorders, 1051
in Crouzon's disorder, 929
in Denmark, in MRs, treatment of, 1327
in galactosemia, 832
in hyperprolinemia, 829
in Norrie's disease, MR and, 1052
progressive external ophthalmoplegia, neurological disorders and, 968
in subacute sclerosing leukoencephalitis, 727
in Wildervanck syndrome, 931

Face
abnormality,
congenital, 937
new syndrome w/MR, 950
in Rubinstein-Taybi syndrome, 945
Family(See also Parent/Parental)
adjustment,
to MR child, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1463
attitudes,
to mongoloid child, psychomotor stimulation by mother in relation to, 1020
to MR child,
development and, 1460
in Malta, 1367
to PKU child,
development and, 796
treatment adjustment and, 799
as behavioral engineers, 1466
counseling,
physician in, 690
public health nurse in, 1365
emotional problems of, recognition and treatment of, 1140
failure-to-thrive children and, 888, 889, 977
siblings of MRs,
adjustment of, 1463, 1464
social services to,
in Denmark, 1375
Fanconi syndrome
differential diagnosis of, 840
Fatty acid
metabolism,
disorders of, inborn, 837
Fetus/Fetal (See also Teratology)
accidental injury of, 773
acid-base equilibrium of,
amniotic fluid acidity and, 1074
anoxia and radiation effects on, case study, 763
anoxia of,
pH of amniotic fluid in relation to, 759
b.i. in, fr anoxia, 760
placenta disorder and, 761
blood glucose in, pregnancy disorder and, 1069
dicephalic, case report, 936
disorder of,
amniotic fluid in diagnosis of, 736
environmental effect on,
research on, 687
hemolytic disease of, 730, 731, 733, 734
Rh,
amniotic fluid spectrophotometric analysis in relation to, 735
exchange transfusion for, 737
hydrops fetalis,
model for, anemia in lambs as, 746
sodium transport by amnion in relation to, 1071
morbidity and mortality, in cord prolapse, 771
phenothiazine treatment of mother in relation to development of, 753
placenta abruptio and, 762
in prenatal detection of genetic defects, 667
Lesch Nyhan syndrome and, 815
rubella infection of, 707
sedative effect on, in parturition, 755
smoking effect on, 756
toxoplasma infection of, 693
Fever (See Body heat)
Finland
PKU and metabolic disorders in MR in, 777
First arch syndrome
variant, 938
Florida
University Affiliated Facility program, 1380, 1381, 1382, 1383, 1475
Folic acid
metabolism, MR and, 883
Folinic acid
metabolism of, disorders of, 883
Foster grandparent (See Community Programs)
France
MR and behavioral problems in children in, 615
Friedreich's ataxia (See Ataxia)
Fructose
metabolism, disorders, inborn, 850

Galactose
metabolism, disorders of, inborn,
etiology, diagnosis, and management of, 832
in urine of infant, assays for, 1070
Galactosemia
behavior, development, and IQ in, diet effect on, 833

biochemistry of, 850
diagnosis, etiology, and management of, 832
Galactose-1-phosphate uridyl transferase
deficiency, in galactosemia, 832
Gargoylism (Hurler's syndrome)
biochemistry and cell ultrastructure in, 875
biochemistry of, 869
cells in, biochemical defect corrected by Hunter's disease cells, 874
diet treatment of, 873
differential diagnosis of, 870
ear abnormalities in, 871
lipid metabolic disorder and, genetics of, 872
Gaucher's disease (See Histiocytosis)
Genetics (See also Chromosomal anomaly; Consanguinity; Counseling; specific disorder)
of congenital anomalies of face, blood vessels, 937
of Crouzon's disease, syndactylia and, 930
disease and, 681
of ep. (centrencephalic), 980
histidase in skin in histidinemia in relation to, 819
of Hurler's syndrome w/ a lipid metabolic abnormality, 872
of hyperdibasicamino-aciduria, 820
of Leigh's necrotizing encephalomyelopathy, 956
of lipoprotein disorders, 841
maternal (egg) effect and, 1057
MR and, advances in, 650, 689, 691
of MR and muscular dystrophy (Duchenne), 967
of oral-facial-digital syndrome, 935
of pituitary dwarfism, 866
Rh hemolytic disease and, 731
screening programs for heterozygotes and, 670
public health agencies in relation to, 669
Georgia
cooperative spec. ed. and vocational rehabilitation program in, 1284
dental status of MR children in, 1328, 1329, 1330
inst. care (cottage-type) in, 1427
spec. ed., for MR and/or physically handicapped, Title I, 1202
Gigantism, cerebral
autonomic nervous system failure in, 923
Globulin
β-, deficiency in De Lange syndrome, 926
γ-,
anti-D, in protection against Rh hemolytic disease, 730, 731, 732, 733, 734
immuno-,
chromosome 18 deletion and, 1010, 1011
chromosome 18 ring and, 1010
congenital rubella and, 705
Gaucher's disease and, 848
monosomy 21 and, 1012
trisomy 13-15 and, 1005
Glucose
in blood, in fetus, pregnancy disorder and, 1069
metabolism of, disorder of, in intrauterine malnourished infants, 892
Glucose-6-phosphate dehydrogenase deficiency syndrome
screening for, 881
Glutamic pyruvic transaminase
Down's syndrome, Australian antigen, and hepatitis in relation to, 1029
Glutathione peroxidase
in blood in hemolytic disease of the newborn, 742
Glycine
metabolism of, disorder of, inborn, 822, 823, 825
CNS disorder in, 824
Glycine oxidase
in hyperglycinemia, 823
Goiter
Down's syndrome and, 1030, 1031
iodide treatment of pregnant mother w/, hypothyroidism in infant and, 861
Gonads
in ataxia telangiectasia, 961
in chromosomal satellite syndrome, 1003
in Klinefelter's syndrome, 1037
in Rubinstein-Taybi syndrome, 942, 943
in Turner's syndrome, chromosomal aberrations and, 1048
in XO/XX mosaicism, 1049
Great Britian (See specific country)
Greenfield's disease (See Leukodystrophy)
Growth hormone
deficiency, intelligence and, 862
disorders,
in pituitary dwarfism, 865
genetics and, 866
Guardianship (See Protective services)
Guidance (See Counseling)

Hallermann-Streiff-Francois syndrome
eye, face, skin, and digit abnormalities in, 928
Haloperidol
in treatment of emotional disturbance, 1309
Health facility (See also Community Program; Hospital)
in genetic screening problems, 669
w/ Head Start in Missouri, problems in, 1392
services,
in Poland, for children, 688
Hearing (See also Ear)
assessment of, 1183
in autism, 1176
w/ operant conditioning audiometry, 1174
in first-arch syndrome variant, 938
in Wildervanck syndrome, 929, 930, 931
Heart/Heart disorder
in Down's syndrome, mortality and, 1015
Ebstein's tricuspid valve malformation in, in Noonan's syndrome, 1046
in Ellis-van Creveld syndrome, 927
in Friedreich's ataxia, 959
in hydrops fetalis,
model for, 746
Marfan's syndrome and, 851, 852
in Smith-Lemli-Opitz syndrome, 932
Hemangioendothelioma
hydrops fetalis in infant with, 907
Hemolytic disease (See Blood; Rh incompatibility)
Hemophilus influenzae (See Bacteria)
Hepatitis
Australian antigen and Down's syndrome in relation to, 1029
Australian antigen in,
Down's syndrome, leukemia, and viruses in relation to, 729
encephalopathy fr,
in children and adolescents, exchange transfusion for, 748
infectious,
Down's syndrome and, 1016
Hepatolenticular degeneration (Wilson's disease)
penicillamine treatment of, 839

Herpes simplex (See Virus)
Histidase
in skin in histidinemia, genetics and, 819
Histidinemia
histidase in skin in, genetics and, 819
mental development in, 818
Histiocytosis
lipid, of kerasin type (Gaucher's disease),
biochemistry of, 844
cerebroside accumulation in spleen in, 846
diagnosis of, glycolipids in, 842
hydrolase and, 847
immunoglobulins and, 848
pregnancy in relation to, 845
Holoprosencephaly
familial, endocrine dysgenesis in, 919
Homocystine
in blood in homocystinuria, 806, 807
Homocystinuria
amino acids in eye in, 809
epinephine metabolism in, schizophrenia and, 811
metabolism in, diet effect on, 806, 807
muscle disorder in, 808
roentgenography features in, 810
Hormones (See also Endocrine system; specific hormones)
Hospital (See also Health facility)
intensive care units for neonates, in regional health centers, 686
psychiatric counseling,
effects of, on children, 1282
RDS infant management in,mortality and, 766
Hostel (See Communityprogram)
Hunter's disease
cells fr, biochemical defect corrected by Hurler's disease cells, 874
Hurler's syndrome (See Gargoylism)
Hyaline membrane disease (See Respiratory distress syndrome)
Hydranencephaly
brain disorders in, 921, 922
Hydrocephaly
burns, meningitis, neuroblastoma and, case study, 772
EEG in infants with, 677
mumps virus infection and, 909
psychiatric disorders in normal pressure, mechanism of, 911
skin ulcers in,
treatment with water pillow, 916
spina bifida and,
surgical treatment in relation to, 917
treatment,
by ventrioculo-atrial shunt,
complications w/ 912, 913, 914
prognosis of, 915
Hydrocortisone
in hypoglycemia treatment, in newborn, 835
Hydrolase
in Gaucher's disease, 847
Hydrops fetalis
in hemangioendothelioma in infant, 907
Hyperbilirubinemia
fr ABO incompatibility, 744
amniotic fluid in diagnosis of, 736
blood carboxyhemoglobin in, 745
in cholestasis in newborn, 838
diagnosis, prognosis, and treatment, 730, 731, 733, 734
exchange transfusion in,
contraindications to, 747
glutathione peroxidase in blood and, 742
Hypercalcemia (See Calcium; Blood)
Hypergammaglobulinemia (See Blood; Globulins)
Hyperglycinemia
CNS disorder in, 824
enzyme defect in, 823
ketotic, in methylmalonic acidemia, 825
nonketotic, 822
Hyperkinesis (See Behavior; Brain injury)
Hypermethioninemia
transient, in normal infant, 830, 831
Hyperparathyroidism
w/ hypoparathyroidism clinical symptoms, vitamin D effect on, 857
Hyperprolinemia
eye and kidney disorders in, 829
type 2, case study, 828
Hypertelorism
in new facial anomaly syndrome w/ MR, 950
Hyperuricemia (See Lesch-Nyhan syndrome; uric acid)
Hypoglycemia
in at-risk infants, 834
drug treatment of, 835
in child,
pancreas surgery in treatment of, 836
in intrauterine malnourished infants, 892
in monosaccharide metabolic error, 850
Hypoparathyroidism
diagnosis, etiology, and biochemistry of, 858
w/ hyperparathyroidism, vitamin D effect on, 857
Hypothyroidism
cholesterol metabolism in, thyroxine effect on, 860
diagnosis of, technetium—99M in, 859
in Down's syndrome,
diabetes and, 1034
in infants,
EEG and, 677
muscular hypertrophy in, 859
in newborn, iodide treatment of pregnant mother and, 861
Hypoxanthine-guanine phosphoribosyltransferase
deficiency, 2-ethylamino-1,3,4-thiadiazole contraindication in, 816
in Lesch-Nyhan syndrome, assay for, 814
in utero, 815
Hypoxia (See Anoxia)

Ichthyosis vulgaris (See Skin)
Icterus neonatorum (See Hyperbilirubinemia)
Idaho
prevalence of oral diseases in CP children in, 1336
Illinois
community programs, education, and residential facilities development in, 1357
residential care (cottage-type) in, description of, 1428
social rehabilitation services in, 1395
state aid programs in, 1358
Immunology (See also Antibody)
in ataxia telangiectasia, 961
Australian antigen, Down's syndrome, and hepatitis in relation to, 1029
auto-,
in eye disorders in subacute sclerosing leukoencephalitis, 727
Down's syndrome and, 1027
Incidence and Prevalence (See Mental retardation; specific disease)
India
ABO incompatibility in infants in, 743
incidence of social and emotional problems in MR children, 1142

programing for MR in, 1364
Indiana
dentistry for MRs in, 1331
Infant
abuse,
psychosocial aspects of, 976, 1459, 1482
amnionitis in, 718
cerebral degeneration in, 963
CNS maturation in,
developmental process and, 1087
environment effect on, 1086
congenital infection in,
cytomegolovirus, 696
kidney disorder and, 695
screening for, 694
rubella, 707
congenital infection in mother in etiology of, 706
immunoglobulin disorders in, 705
toxoplasma,
in sibs, 692
transmission, epidemiology, and prevention of, 693
viral,
w/ *Herpes simplex*, mortality and, 697,698, 699
congenital malformation in,
Apgar score and, 687
Arnold-Chiari, basilar impression and, 924
of blood vessels and face, MR and, 937
in chromosomal anomaly,
translocation C/G, 1002
translocation (4q-,Cp+), 1001
trisomy 13-15, 1005
dicephaly and syncephaly, 936
embryonic insult in etiology of, 1077
in first-arch syndrome, 938
ichthyosiform erythroderma, 951
of joints, brain, and palate, 940
public health screening programs and, 669
fr rubella, 705, 706, 707, 708
of skin, face, and digits, 941
in Smith-Lemli-Opitz syndrome, 932, 933, 934
convulsions in,
cerebral anoxia in etiology of, 987
psychomotor development and, 979
failure-to-thrive, 977
"floppy",
classification of, 664
genetics and screening programs for, 650
hydrops fetalis in,
in hemangioendothelioma, 907
intrauterine malnourished,
hypoglycemia in, 892
low birth-weight,
dwarfism and, 868
maternal smoking and, 684
malnourished, mental development and, 891, 892, 893, 894, 896, 897, 898, 899, 900, 901
maternal diet and, 895
neurology,
development of, assessment of, 661, 687
newborn,
ABO incompatibility in, prematurity and low birth-weight in relation to, 743
acidosis and hypoxia in,
lung disorder in relation to, 1075
treatment of, 1076
aminoacidemia in, screening for, 876, 877
at-risk,
Apgar score and, 687
hypoglycemia in, 834
treatment of, 835
placenta in diagnosis of, 671
body heat loss in, fr exchange transfusion, 738
brain disorder in,
fr anoxia, 760
etiology and prognosis of, 774
cholestasis in, as new syndrome, 838
cry,
in *cri du chat* syndrome, 1000
damage in, fr fetal injury, 773
EEG and, 674
in sleep, 677
failure-to-thrive, 888, 889
galactose in urine of, assays for, 1070
hemolytic disorders in, 730, 731, 733, 734
ABO, 744
carboxyhemoglobin in blood in, 745
exchange transfusion for,
contraindication to, 747
Rh,
diagnosis, 735
exchange transfusion for, 737
prevention of, 732
hyperbilirubinemia in,
glutathione peroxidase and, 742
hypercalcemia in, 885
vitamin D excess and, 884, 886
hypermethioninemia (transient) in, 830, 831
hyperphenylalaninemia in, 789
hypothyroidism in,
iodide treatment of pregnant mother and, 861
intestinal disorder in, fr exchange transfusion, 739, 740, 741
maternal age and, 684
maternal sedative effect on, after parturition, 755
maternal smoking effect on, 684, 756
metabolic error in, screening for, 878, 880
morbidity and mortality,
in cord prolapse, 771
in Pakistan, socioeconomic factors in relation to, 770
reduction of, 686
multiple-purpose crib for, 1326
nerve conduction velocity in, gestational age and, 662
neurological disorders in,
EEG in relation to, 675
follow-up study, 676
pediatrician and physician roles in care of, 668
phenothiazine in treatment of mother in relation to development of, 753
phenylalanine in blood in,
human milk in relation to, 793
premature, follow-up study of scholastic achievement of, 1218
reflexes of, 1088, 1089
respiratory distress syndrome in,
etiology and treatment of, 765
heart-lung apparatus for prevention of, 767
lung changes in, 768
surfactant deficiency in, 764, 769
mortality in, hospital protocol for management in relation to, 766
w/ spina bifida,
surgical treatment of, 917
tyrosinemia in, 805
virus infection of, 719
Infantile autism (See Autism)
Infection (See also Bacteria; Virus; specific headings)
in Creutzfeldt-Jakob disease etiology, 966

cytomegalovirus,
in infants, 694
diseases associated w/, 696
kidney disorder and, 695
Herpes simplex,
mortality of,
in infants, 697, 698
in infants and children, 699
in hydrocephalus shunt systems, 912, 913, 914
malnutrition and,
mental development in relation to, 890
respiratory, in Rubinstein-Taybi syndrome, 949
by toxoplasma, in infants, 692, 693
varicella, in children, mortality fr, 700
viral,
of CNS, 722
control of, 721
diagnosis of, 719
respiratory disorders and, 720
Institutions for MR (See Residential Care and Services)
Intelligence (See also Cognition; Creativity; Tests)
acetonuria in pregnancy effect on, 752
assessment of,
w/ Draw-A-Person test, 1160
for education information, 1183
MR and, 1180
object discrimination learning sets and, MR and non-MR CPs,
c/w MRs and normals, 1096
w/ Wechsler Adult Intelligence Scale, updating inst. norms, 1159
w/ Wechsler Intelligence Scale for Children, subscale reliability, 1158
in autism, 1149
borderline,
in mongoloid, 1024
brain warts and, 939
childhood influences effect on, 1131
emotional disorders and, 1146
employability and, 1298
job efficiency and, 1299
environmental effect on, 1092
in galactosemia, diet effect on, 833
of high school dropouts, 1143
in homocystinuria,
diet effect on, 807
in hydrocephalic survivors, 910
in hypoglycemia,
pancreas and, 836
incidence of dental caries and, in inst. MRs, 1333
inhibition and the orienting reflex and, 1117
language development program effect on, 1242
learning and, 1114
learning and performance in relation to,
intrinsic versus extrinsic motivation and, 1094
learning transfer and, 1097
MRs c/w normals, 1095
level of,
person perception and, 1116
life expectancy of MRs in relation to level of, 1417
malnutrition effect on, 633, 634, 635, 636, 637, 638, 639, 891, 892, 893, 894, 896, 897, 899, 900, 901
memory span and, 1111
short-term, effects of visual and auditory stimuli on, normals c/w MRs, 1105
short-term, EMRs c/w normals, 1099
in microcephaly, 925
MR classifications and, 619
musical talent and, 1119
normal, in Gaucher's disease, 844
in offspring of PKU mother, 784
maternal diet effect on, 785
in oral-facial-digital syndrome, 935
in pituitary gland disorders, 862
in PKU,
diet effect on, 779, 797, 798, 801, 802, skepticism of, 803
poisoning effect on, 1138
in pseudohypoparathyroidism,
vitamin D effect on, 855
socioeconomic factors and, 970, 971, 972, 973, 974, 975
verbal,
effects of program for stimulation of, w/ disadvantaged, 1239
vocational rehabilitation success and,
in culturally disadvantaged, 1288
Intelligence quotient
changes in, of inst. CPs, 1186
Intestines
disorder,
fr exchange transfusion in newborn, 739, 740, 741
Ireland
Commission of Inquiry on Mental Handicap, educational recommendations of, 1198
provisions for MR in, 1352, 1353
social work in, 1501
Israel
Down's syndrome in, 1014
heart disease and mortality in relation to, 1015
inst. in, vocational rehabilitation in, 1420
PKU in, diet and, 779
viral meningitis in, 725

Jakob-Creutzfeldt disease
infection in etiology of, 966
Japan
MR in,
architectural planning in, 645
survey of occlusion of CP children in, 1340
Jaundice (See Hyperbilirubinemia)

Kansas Neurological Institute
child study unit,
function of, 1387
Kentucky
dentistry for MR in, 1331
religious facilities for MR in, 1401
Kernicterus (See Hyperbilirubinemia)
Kidney/Kidney disorder
in congenital cytomegalovirus infection, 695
in Fanconi's syndrome, 840
in hydrocephalic shunt system failure, 914
in hyperprolinemia, 829
in tuberous sclerosis, radiography in, 902
Klinefelter's syndrome
EEG changes in, 1039
muscle wasting disease in, 1038
respiratory disease and, 1037
Krabbe's disease (See Sclerosis)
Kuf's disease (See Lipoidosis, cerebral)
Kuru
subacute cerebellar degeneration,
epidemiology, clinical symptoms, and prognosis, 960
Kwashiorkor (See Nutrition)

Lactic acid
in blood in excess,
in methylmalonic acidemia, 825
Language (See also Communication; Psycholingiustic ability; Speech)
affect and, 1120
assessment of, 1183
in autism, 1152
w/ operant conditioning audiometry, 1174
w/ Utah Verbal Language Development Scale, 1170
in autism,
characteristics of, 1149
deficiency in MRs, 1168
development,
activities for stimulation of, effects of, 1169
cognitive development and, in disadvantaged, 1118
EMR c/w normal, 1104
experimental analysis of, w/ SMR, 1241
programs, 1201, 1278
for disdavantaged, 1238, 1239
for inst. SMR mongoloids, 1236
Peabody Language Development Kits and, 1237
reading, 1234
speech therapist and, 1483
discrimination learning,
accentuated c/w conventional word presentation and, 1121
sorting behavior and, in b.i., 1165
disorder,
aphasia,
developmental, characteristics of, 1123
Symbol Accentuation techniques w/ adults, effects of, 1230
dysphasia, b. i. and, 1093
in verbal abstracting ability, in cultural-familial MRs, 1091
EEG in children in relation to, 678
written ability, dimensions of, of EMRs, 1171
Larnynx
in *Cri-du-chat* syndrome, 1000
Law (See Legislation/Law)
Lead poisoning
etiology, management, and prevention of, 749, 750
nerve structure changes in, 751
Learning (See also Cognition)
ability,
public attitudes and, 1379
in adults, infant malnutrition and, 891, 892, 893, 894, 895, 897, 898, 899, 900, 901
concept formation,
sensory motor training effect on, 1222
conditioning,
classical,
intelligence and, 1117
normals c/w MRs, 1109
orienting reflex and, 1117
resistance to extinction and, 1117
electrophysiological, 1065
operant, 1107, 1314
exercise program of, 1273
inst. program of, 1265
social development and, 1419
w/ multiply-handicapped, 1313
parents as behavioral engineers, 1466
w/ PMR girl, 1272
in sheltered workshop, 1292
w/ SMR children, 1110
in speech program, 1276
verbal behavior and, 1108
verbal, w/ b. i. boys, 1315
cultural deprivation and, 1181
discrimination,
accentuated c/w conventional word presentation, 1121
of CPs c/w MRs and normals, 1096
different reinforcers effects on, 1271
MRs c/w normals, 1095
reinforcement schedules and, 1115
short-term retention and, 1102
sorting behavior and, of b. i., 1165
disorders,
of b. i. adolescents, 1227
descriptions of, 1226
in disadvantaged, 1210
remedial programs for, 1211
dysphasia, b.i. and, 1093
in information processing, after viral encephalitis, 1125
poisoning and, 1138
screening for, physician role in, 666
treatment of, w/ operant techniques, in the classroom, 1270
in verbal abstracting ability, in cultural-familial MRs, 1091
distraction factors,
social referents as, 1127
drug treatment and, in rats, 1307
early childhood education and, 1217
environment and, 1124
ep. and, 983
malnutrition effect on, 636
motivation,
intrinsic c/w extrinsic,
intelligence and, 1094
physical proficiency performance and, EMRs c/w normals, 1080
orienting reflex,
inhibition and, 1117
intelligence and, 1117
paired associate,
MA and IQ, effects on, 1103
peer influences and, 1127
perceptual-motor impairment on,
effects of, 1084
physiological imprinting and, 1115
potential, in EMR adolescents, 1195
principles of,
behavior modification,
research analysis and review, 1263
educational implications of, 1266
processes of exceptional children,
conceptual framework for, 1205
programed,
for reading, effects of, 1257
w/ culturally deprived slow learners, 1256
reinforcement,
different types of, effects of, 1080, 1117, 1269, 1271
peer influence on, 1127
positive,
on self-destructive behavior of SMR boy, effects of, 1268
schedules of, effects of, 1115
on social and communication behavior of MR adolescents, effects of, 1126
social versus token, effects on verbal conditioning, 1107, 1108
of visual attention, effects of, 1274
research,
practical implications of, for spec. ed., 1206
Zigler's theory, 618, 620, 621
retention, semantic satiation and, 1112

reversal,
MRs c/w normals, 1109
short-term,
auditory and visual stimuli on,
effects on normals c/w MRs, 1105
in autism, 1106
EMRs c/w normals, 1099
inter-trial interval effect on, 1102
subjective organization and, EMRs c/w normals, 1100
task interruption and, 1114
verbal and numerical, 1111
word association value on,
MRs c/w normals, 1101
socioeconomic factors and, 970, 971, 972, 973, 974, 975
stimulus,
enrichment w/ cultural-familial MRs, 1091
pacing, effects on verbal conditioning, 1107
semantic satiation, effects on, 1112
structure of, evocation of vocalization and, 1278
transfer of, 1097, 1098
discrimination and, MRs c/w normals, 1095
practical implications of studies of, 1097
Legislation/Law
child abuse,
physician responsibility in, 976
for community facilities construction, 1348, 1349
for educational assistance, 1343, 1344
spec. ed., 1354
vocational, 1346, 1347
national, 1350
PL 88-164 (Mental Retardation Facilities and Mental Health Centers Construction Act), 1348, 1349
PL 89-313, 1354
PL 90-35 (Education Professions Development Act), 1345
PL 90-538 (Handicapped Children's Early Education Assistance Act), 1343, 1344
PL 90-576 (Vocational Educational Amendments of 1968), 1346, 1347
Title I, of Elementary and Secondary Education Act of 1965, 1202
in Sweden, 1341
spec. ed., 1376
for teacher education, 1345
in Tennessee,
insurance for handicapped, 1342
Lesch-Nyhan syndrome
diagnosis *in utero*, 815
2-ethylamino-1,3,4-thiadiazole effect on, 816
Leukemia
Australian antigen in,
Down's syndrome, hepatitis, and viruses in relation to, 729
Down's syndrome and, 1028
Leukodystrophy (See also specific disease)
demyelinating infantile,
cerebellar atrophy in, 955
metachromatic,
diagnosis of, glycolipids in, 842
diet treatment of, 952
nerve inclusions in brain and spinal cord in, 954
peripheral neuropathy, 953
Leukoencephalitis
subacute sclerosing,
EEG periodic complex in, 728
subacute sclerosing (Van Bogaert),
eye disorder in,
auto-immunity and, 727
Linolenic acid
metabolism of,
disorders of,
inborn, 837
Lipid
in brain in PKU, 787
metabolism,
disorders,
brain disorders and, 842
gargoylism and, 872
inborn, 837
Lipochondrodystrophy (See Gargoylism)
Lipoidosis, cerebral
amaurotic family idiocy and Tay-Sach's disease,
EEG pattern in, 843
EEG patterns in, 849
Lipoprotein
disorder, characteristics of, 841
Liver
cystathionine synthetase in,
in homocystinuria, 806, 807
disorder,
in Byler disease, 1053
in galactosemia, 832
in hyperpipecolatemia, 812
in monosaccharide metabolic error, 850
in Wilson's disease, penicillamine in treatment of, 839
hydrolase in, in Gaucher's disease, 846
Lowe's syndrome (See Oculo-cerebro-renal syndrome)
Lung
disorder,
in ataxia telangiectasia, 961
in Klinefelter's syndrome, 1037
in newborn,
respiratory distress syndrome,
alveolar lining and, 768
surfactant deficiency in, 764, 769
treatment of, 1076
assisted ventilation in, 1075
in virus infection in children, 720
Lysergic acid diethylamide
chromosomal anomalies and, 1061, 1062, 1063

Malformation, congenital (See Infant)
Malformation (See Nutrition)
Malta
family acceptance of MR in, 1367
recreational activities in, 1449
residential care in, 1429, 1435, 1436
Malta Society for the Mentally Handicapped
social services of, 1467
Manpower (See also Personnel)
shortage, in Puerto Rico, 1413
Marfan's syndrome (See Arachnodactyly)
Mariana Islands
neurological disorders on, 994
Maryland
community attitudes and programs in, 1378
Maturation (See Development)
Measles (See Rubella; Viruses)
Medicine
programs, in university-affiliated facility
in Florida, 1382
Medulloblastoma
radiation treatment of, 906
Meningitis
fr ameba, 726
fr bacteria infection,

388-622 O - 70 - 14

treatment and neurological sequelae of, 723
burns, hydrocephalus, neuroblastoma, and, case study, 772
in hydranencephaly, 921
fr *Neisseria catarrhalis*, treatment of, 724
viral, in Israel, 725
Meningocele (See also Hydrocephalus; Spina bifida)
in neurofibromatosis, 904, 905
Mental age (See Development)
Mental health
clinical psychologist and, 1478
effects of childhood influences on, 1131
facility, architecture and, 1377, 1469
in India, 1364
Mental retardation, general
assessment of, problems of, 1188
classification of, intelligence and, 619
clinical aspects of, 665
conference on, 632
declaration of rights of, 613
diagnosis, 659, 660, 661, 663, 1147, 1280
diagnosis and management of, 656, 657
diagnosis and prognosis of, 674
diagnosis, etiology, and treatment of, 655
in England (Wessex), 616
epidemiology of, 614, 1184, 1185, 1188, 1226, 1412
etiology of, 682, 683, 689, 749, 750, 753, 775, 837, 854, 868, 898, 899, 900, 901, 963, 964, 970, 971, 972, 973, 974, 975, 1129
in Finland, 777
in France, 615
general information, 624
genetics and, 650
historical aspects of, 651
international aspects of, 612, 629
malnutrition and, 633
misconceptions about,
in U.S., 625
misdiagnosis, 658
philosophy and, 628
prevention, 667, 685, 1359
psychosomatic disorders and, 623
research in, 622, 981
reversibility of, 1144
severe, in Sweden, 617
theory in, 618, 620, 621
treatment of, 1067, 1068
Metabolism
of fatty acids,
disorders of, inborn, 837
of glycolipid, disorders of,
brain disorders in, 842
inborn errors of, 650, 863
b.i. in, EEG and diet in relation to, 882
diagnosis and prevention of, 804
diagnosis of, 670
odors in, 659
prenatal, 667
amniotic fluid in, 736
diagnosis and prevention of, 804
EEG patterns in, 849
in Finland, MR and, 777
screening for, 876, 877, 878, 879, 880
of monosaccharides,
disorders of,
inborn, 850
of pteridines,
disorders of, 883
of sugars,
disorders of, in malnutriton, 893
Methionine
in blood in excess,
in normal infant, 830, 831
in blood in homocystinuria, 806, 807
Methylmalonic acid
clinical and biochemical features of, 825
Methylphenidate
in treatment of hyperactivity and stereotyped behavior, 1306
Microcephaly
in homocystinuria, 810
in intelligence and, 925
Milk
human, phenylalanine in infant blood in relation to, 793
Minnesota
inst. care in,
standards for, 1416
schools for MR,
religion in, 1402
Missouri
Head Start health services in, 1392
Mongolism (See Down's syndrome)
Mortality
in amnionitis, 718
in dicephaly and syncephaly, 936
in Down's syndrome,
in Israel, 1015
in Friedreich's ataxia, 959
fr *Herpes simplex*, in infants and children, 697, 698, 699
of infants in Pakistan,
socioeconomic factors in, 770
in inst., intelligence level in relation to, 1417
neurosurgery of children and, 1068
in placenta abruptio, 762
in RDS, hospital protocol for management in relation to, 766
in umbilical cord prolapse, 771
fr varicella, in children, 700
Mother (See Family; Parent/Parental; Pregnancy; Parturition; other related headings)
Motivation
intrinsic and extrinsic, effects on mental development, 1094
in MR performance, 620, 621
rationale and irrational aspects, 618
physical proficiency performance and, EMRs c/w normals, 1080
Motor development (See Development)
Mucopolysaccharides
metabolism of,
disorders of, 869, 870, 871
biochemistry and ultrastructure in, 875
mutual correction of biochemical defects, 874
Multiply handicapped
in Australia,
programs for, 1385
clinic program, guidelines for,
for management of CP child, 1335
discrimination learning,
MR and non-MR CPs c/w normals and MRs, 1096
incidence in TMR and SMR, 1184
intellectual assessment of, 1192
physical rehabilitation of,
w/ operant conditioning techniques, 1313
religious education for, 1403, 1404
vocational training program for, in Ohio, 1294

Muscle/Muscle disorder
in chromosome translocation (C/G), 1002
in homocystinuria, 808
hypertrophy of, in hypothyroidism, 859
in Klinefelter's syndrome, 1038
MR and, 962
Muscular dystrophy (See Dystrophy)
Music (See also Education, special)
aptitude for, in an SMR girl, 1119
as learning aid in mongolism, 1023
in social adjustment, 1447
therapy, 1317
Myelomeningocele (See Spina bifida)

National Institute of Neurological Disease and Blindness
Collaborative Perinatal Study of,
preliminary findings of, 684
National Society for Autistic Children
recommendations of, 630
Negro
PKU in, 778
Neonate/Neonatal (See Infant)
Nerve
conduction velocity,
in newborns, gestational age and, 662
disorders,
in Alexander's disease, 965
in metachromatic leukodystrophy, 953
inclusions in oligodendroglia of, 954
in Rubinstein-Taybi syndrome, 947
spinal cord biochemistry in, 957
in Friedreich's ataxia,
electron microscopy of, 958
histology of, 652
structure changes in,
in lead poisoning, 751
Netherlands
industrial therapy in, 1290
Neuroblastoma
burns, meningitis,
hydrocephalus and, case study, 772
Neurofibromatosis (Von Recklinghausen's disease)
meningocele and spine disorders associated w/, 904, 905
pheochromocytoma in association w/, 903
Neurological disorders
in Alexander's disease in adult, 965
fr bacterial meningitis, 723
in children, 660, 661
clumsiness as symptom of, 665
in demyelinating leukodystrophy in infants, 955
fr diphenylhydantoin poisoning, 757
in children, 758
ep. and, 983
etiology of, 682
in eye disorder syndrome, 968
in fatty acid metabolic error, 837
fr head injury, 775
as hydrocephalus sequelae, 910
in hyperpipecolatemia, 812
in infants,
assessment of, 664
EEG and, 675, 676
etiology and prognosis of, 774
in kuru, in New Guinea, 960
in lead poisoning, 751
in Lesch-Nyhan syndrome, 813, 814, 817
in Mariana Islands, 994
in pituitary gland hormone deficiencies, 862
as poisoning sequelae, 1138
progressive, 963
ceroid metabolism and, 964
psychological testing in, 1193
fr Rh iso-immunization of fetus and newborn, 730
screening for, physician role in, 666
socioeconomic factors in, 970
in spina bifida,
early surgery in prevention of, 917
surgical treatment of, 1068
in thiamine deficiency, 887
fr virus infection, 701
in Wilson's disease,
penicillamine in treatment of, 839
Neurology
child, bibliography on, 653
Down's syndrome and, 1025
of ep., 981
Neuromuscular system (See Muscles; Nerves; Development)
New Guinea
kuru epidemiology in, 960
Niemann-Pick disease (See Histiocytosis)
Noonan's syndrome (male Turner's syndrome)
alkaline phosphatase and schwannoma in, 1045
familial, as Turner's syndrome variant, 1047
heart disorder in, 1046
Norrie's disease
eye disorder and MR in, 1052
Nursing, profession of
home-visit, in treatment of SMR children, 1369
public health,
in community programs for MRs, 1365
in home management of MR child, 1370
in social development of MRs, 1474
training,
in university affiliated facility in Florida, 1475
trends in, 1476, 1477
Nutrition
caloric needs of MR in relation to, 1064
of failure-to-thrive infants, 888, 889
mal-,
intrauterine,
hypoglycemia and, 892
mental development and, 633, 634, 635, 636, 637, 638, 639, 891, 892, 893, 894, 895, 897, 898, 899, 900, 901
mental development and infection in relation to, 890
sugar intolerance in, 893

Occupational therapy
functional evaluation and, 1173
Ocular disorder/infection (See Eye)
Oculo-cerebro-renal syndrome (Lowe's syndrome)
EEG in, 800
Odor
in MR syndrome diagnosis, 659
Ohio
dentistry for MR in, 1331
foster grandparents program in, 1393
vocational training program for multiply handicapped, 1294
Oklahoma
inst. care in, 1434
Operant conditioning (See Learning)

Oral-facial-digital syndrome
dermatoglyphics, IQ, and genetics of, 935
Oregon
rubella vaccination program in, 711
Orthopedic aids (See Appliances)

Pakistan
infant morbidity and mortality in,
socioeconomic factors and, 770
Pancreas
in hypoglycemia, 836
Paralysis (See also Cerebral palsy)
of "floppy" infants, 664
Parent/Parental (See also Family)
of abused children, 1482
psychosocial aspects of, 976, 1459
adjustment,
to MR child, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1463
attitude,
to dental care of MR, in Georgia, 1330
to MR, prognosis and, 615, 1460
personality development and behavior of handicapped child in relation to, 1137
to PKU child, development in relation to, 796
as behavioral engineers, 1465,
characteristics of, on MMPI, 1461
counseling of, 1187
genetic, 691, 1473
physician role in, 1481
evaluation of handicapped child,
c/w staff evaluation, 1324
in failure-to-thrive etiology, 888, 889
instructional methods for, 1213
mother, 1462
of mongoloid,
coital frequency and, 1018
fertility of, 1017
psychomotor exercise of child in relation to family adjustment, 1020
in nursery school adjustment, 1141
of PKU child,
attitude of, development in relation to, 796
diet preparation by, 799
w/PKU,
intelligence of offspring of, 784
maternal diet effect on, 785
MR management by,
home-visiting nurse in, 1369, 1370
relationships,
w/ b.i. child, 1187
religious attitudes of,
religious education for handicapped child in relation to, 1405
in spec. ed. programs, 1368, 1468
teacher and, 1490
Parents and Friends of Mentally Retarded Children
of Bridgeport
social services and, 1388
Parturition (See also Pregnancy)
fetal blood glucose in, 1069
sedatives in,
effect on newborn, 755
umbilical cord prolapse in,
management of, 771
Pediatrics
MR syndrome diagnosis in,
odor characteristics in, 659
prenatal,
pediatrician in, 668, 685
Pelizaeus-Marzbacher disease (See Leukodystrophy)
Penicillamine
in Wilson's disease treatment, 839
Penicillin
in bacterial meningitis treatment, 723
in *Neisseria catarrhalis* meningitis treatment, 724
Perception (See also Cognition; Learning; other related headings)
auditory and visual,
teaching methods and, w/ disadvantaged Negro boys, 1231
development of,
role of art education in, 1246
impairment in,
in autism, 1148, 1149, 1150
in b.i. child, reading program for, 1232
congenital dyslexia, characteristics of, 1123
effects of, 1084
on cognition of CP adults, 1167
on writing, test for, 1172
viral encephalitis and, 1125
perceptual motor,
training activities for,
effects of, w/ inst. MR, 1223
of persons,
strength of cognitive structure and, 1116
visual,
assessment of, 1183
Benton Visual Retention test and, 1164
Peabody Picture Vocabulary Test c/w Developmental Test of Visual Perception, 1163
conflict between tactual and,
MRs c/w normals, 1085
discrimination, effects of intertrial interval on learning of, 1102
early b.i. effect on, in non-MR CP adults, 1166
sensory motor training and, 1222
social responses and, w/ autistic children, 1154
training activities for, 1323
Peritonitis (See Intestines)
Personality (See also Adjustment/personal-social; Behavior)
assessment of, 1182
in culturally deprived children,
in Head Start program, 1185
validity of Junior Eysenck Personality Inventory w/ Indian MR, 1155
characteristics, success and, 1130
development,
childhood influence on adult, 1131
early maternal deprivation and later adoption effect on, 1144
handicap effect on, 1137
MR and, in India, 1142
music education and, 1255
in pedophilia, 1139
Personnel (See also Manpower and specific area of interest)
child-care worker,
in social development and education of MR child, 1470
clinical psychologist,
in community programs, 1478
counselor,
summer day camp program effectiveness and, 1438
genetic counselor, qualifications of, 1473
nurses,

training, in university affiliated facility in Florida, 1475
trends in, 1476, 1477
in physical education and recreation for MR, request for information, 1499
physical therapy assistants, training program for, 1471
professional, MR and, 1500
psychiatrists,
role in MR, 1479
training,
in Alabama, 1384
in inst., summer work program in, 1391
in university affiliated facility, 1380, 1381, 1382, 1383
Pheneturide
in ep. treatment, 996
Phenothiazine
in psychosis treatment during pregnancy,
effect on fetus and newborn, 753
Phenylalanine
in blood in excess, 789
diet effect on, 788, 790, 791, 792
in infants on human milk, 793
in rats, Ribaminol effect on learning in relation to, 794
brain response to excess, 786
Phenylketonuria (PKU)
brain lipids in, 787
development of offspring of mothers w/, 784, 785
dietary treatment of,
behavior, IQ, and development after, 798
intelligence response to, 797, 801
skepticism of, 803
intelligence and psycho-social development after, 802
EEGs in, 800
family adjustment to child w/, 796, 799
incidence,
in Finland, 777
in Israel, diet and, 779
learning in rats w/,
Ribaminol effect on, 794
in Negro infant, 778
scleroderma and, diet and, 795
screening tests for, 780, 781
in England, 783
Guthrie blood test as,
antibiotic effect on, 782
Phenochromocytoma
in neurofibromatosis, 903
Phosphatase
alkaline, in Noonan's syndrome, 1045
Physical development (See Development)
Physical therapy
assistants for,
training of, 1471
physical therapist, role of, w/ children w/ cerebral dysfunction, 1083
Physician
in child abuse cases, 1482
ep. treatment and, 982
in neurological disorder screening, 666
in parent counseling, 1481
in genetics, 690
in prenatal pediatrics, 668
Pituitary gland
disorders of,
intelligence in, 862
dwarfism, growth hormone disorder in genetics of, 865, 866
Placenta
artificial, for RDS immature infants, 767
in determination of infant condition, 671
disorders,
abruptio, fetal damage fr, 762
anoxia in fetus fr, b.i., and, 761
fetal bleeds into,
Rh hemolytic disease and, 734
injury to,
fetus and infant damage in relation to, 773
smoking effect on,
fetus and newborn response to, 756
Plumbism (See Lead poisoning)
Pneumonencephalography (See Radiography)
Poisoning
by diphenylhydantoin,
in children, 758
treatment of, 757
lead,
in children, 749, 750
nerve structure changes in, 751
Poland
medical care program in, for children, 688
Post-school adjustment (See Adjustment/Personal-social)
Poverty (See Socioeconomic factors)
Pregnancy (See also Parturition; Teratology; and other related headings)
accidental injury in,
fetus and infant damage fr, 773
acetone in urine in,
infant IQ and, 752
carbon dioxide tension in, newborn disorders and, 1074
diabetes treatment during, effect on fetus and newborn, 754
disorders,
amnion fluid electrolytes and, 1073
fetal blood glucose in relation to, 1069
Gaucher's disease and, 845
high-risk,
estriol determinations in management of, 672
iodide treatment of goiter in, hypothyroidism and, 861
malnourishment in,
infant malnourishment and, 895, 897
pediatrician's role in prenatal care, 668
phenothiazine treatment of psychosis in, effect on fetus and newborn, 753
rubella infection in mother reactivation by, 706
rubella susceptibility in United States in relation to, 716
sedatives in,
effect on fetus and newborn, 755
smoking in,
effect on fetus and newborn, 756
Prematurity (See Infant)
Primidone
poisoning by, treatment of, 757
Prochlorperazine
effects of prolonged treatment w/, in rats, 1307
Programing for MR (See also Community programs)
aged, Senior Citizens' role in, 1361
in Alabama, 1384
architecture in mental health facilities and, 1377
in England, 1362, 1363
in Illinois, 1357, 1358
in India, 1364
in Sweden, 1341
in United States, 1343, 1344, 1346, 1347, 1348, 1349, 1350, 1351, 1353, 1354, 1355, 1356, 1360
in Wisconsin, 1359
Proline
metabolism of, disorder of, inborn, 828, 829
Protective services
guardianship,

problems in, 1396, 1398
in Spain, 1397
insurance for handicapped,
in Tennessee, 1342
in Ireland, 1352, 1353
in United States, 1351
Protein
in spinal cord,
in Friedreich's ataxia and motor neurone disease, 957
Pseudohypoparathyroidism
case study, 854
mental development, calcium effect on, 855
Pseudo-pseudohypoparathyroidism
brachydactyly in, 856
in XO/XX mosaicism, 1049
Pseudoretardation
EEG in, 1066
ep. and, 998
Psychiatric disorders (See also Autism; Emotional disturbance/Emotionally disturbed)
in children,
brain dysfunction and, 978
schizophrenic c/w MR, 1147
ep. and, 989
in hydrocephalus (normal pressure), mechanism of, 911
large Y chromosome and, 1042
MR and, 623
pedophilia,
etiology of, 1139
phenothiazine in treatment of,
in pregnancy, fetus and newborn response to, 753
psychosis,
diagnosis and treatment of, in MR, 1145
maturational changes in, follow-up study of, 1281
schizophrenia, epinephrine metabolism in,
homocystinuria and, 811
XYY chromosome anomaly and, 1040, 1044
Psychiatry
care of SMR and, 1325
MR and, 1479
psychiatrist,
counseling by, on pediatric medical ward, effects of, 1282
Psycholinguistic abilities (See also Communication; Language; Speech)
in children,
EEG and, 678
Psychology
MR and, 651
school psychologist,
behavior modification and, 1270
Psychotherapy
behavior modification techniques in use, 1267
w/ children, 1480
psychotic preschool, 1281
group and film therapies, w/ emotionally disturbed adults, 1310
in management of MR child, 1280
Pteridine
metabolism of,
disorders of, 883
Puerto Rico
inst. care and social services for MR in, 1413
Purine
metabolism of,
disorders of, inborn, 817
Δ^1-Pyrroline-5-carboxylic acid dehydrogenase deficiency, in hyperprolinemia type 2, 828
Rabbits
rubella infection in, 717
Radiation
chromosome satellite formation and, 1009
fetus response to, anoxia and case study, 763
in medulloblastoma treatment, 906
Radiography
auto,
in chromosome aberrations, 1006, 1007
in homocystinuria, 810
in tuberous sclerosis, 902
Recreation
bowling, 1448
camping,
day camp, description, 1442
physical development and, 1439
psycho-social development and, 1440
summer camp, description of, 1441
summer day camp programs, 1438
dancing, 1446
4-H activities for the MR as, 1450, 1451
music, social adjustment and, 1447
outings, in Malta, 1449
personnel in,
information request and, 1499
pioneer village construction as, 1445
in residential facilities, 1443
soap box derby as, 1424
in social adjustment of adolescents, 1437
social club formation, social adjustment in relation to, 1444
teacher of,
as special educator, 1497
Reflexes (See Nerves; Development; and related headings)
Regional center (See Community Programs)
Rehabilitation, vocational
of adolescent MR, 631
assessment, of parents c/w staff, 1324
in Canada, 1305
employment,
employability,
cognition and, 1298
community attitudes toward, 1304
conceptual thought and, 1129
employer,
attitudes to MR, 1303
job success,
personality factors and, 1130
predictors of, 1299
in Federal government, 1302
occupational hazard and disability rates in, 1301
preparation for, for slow learner, 1243
for EMR, 1279
Evansville Rehabilitation Center and, 1395
Federal government agencies as employers in, 1302, 1360
in Georgia, 1284
industrial therapy,
in the Netherlands, 1290
in Israel inst., 1420
legislation for,
national, 1346, 1347
of MR young adults, 632
personnel,
role of, 1302
prevocational training, for inst. MRs, 1286
school programs for, 1283

sheltered workshops, 1296
evolution of, in Connecticut, 1293
model of vocational development in, 1297
in the Netherlands, 1290
preparatory program for, for TMR, 1291
in a private inst, network for MR, 1390
programing environment of, 1292
for slow learners, 1295
of socially disadvantaged,
prediction of, 1288
in South Dakota, 1289
vocational interest test, reading-free, 1300
vocational training for multiply handicapped,
in Ohio, 1294
work readiness, at elementary level, 1287
Religion
clergymen attitude toward MR,
in Indiana, Kentucky, and Ohio, 1400
facilities for,
in Kentucky, 1401
for handicapped child,
parental attitude and, 1405
for multiply-handicapped children, 1403, 1404
in school for MR,
in Minnesota, 1402
Reproduction (See also Infant; Pregnancy; Parturition)
in mothers of Down's syndrome patients, 1017
Reproductive organs (See Gonads)
Research, general
Collaborative Perinatal Study of the National Institute of Neurological Disease and Blindness,
preliminary findings of, 684
methodology, problems in, in study of physical development of mongoloid children, 1079
needs in MR, 1325
practical implication of findings of, 1097
Residential Care and Services
adapted-living community as, for SMR, 1373
adjustment in,
mothering in relation to, 1425, 1426
for aged MRs, 1361
architecture and, 640, 641, 642, 643, 644, 646, 649, 1414, 1469
in Japan, 645
research in, 647
art therapy in, 1316
in Australia, 1356
behavior and adjustment of,
of MR children, 1184
personal possessions in relation to, 1132
stereotyped, effects of age and time of day on, 1136
in Canada, 1415
child management in, 1408, 1410
for b.i. child w/ behavior problems, 1224
operant conditioning techniques in, 1419
community center as,
for SMRs, 1374
dentistry in,
bibliography on, 654
description of, 1422
dietary calorie needs in, 1064
ecology of, sociology of inst. in relation to, 1411
education in,
for CP, in Scotland, 1225
language stimulation and reading program for mongoloid SMR, 1236
language training for SMR, 1241
milieu teaching, 1221
physical education program, 1251
Symbol Accentuation techniques, w/ TMR, 1228
in England,
demand for, community training programs effect, 1372
environmental deprivation and, 1412
Wessex plan for, 1407
in Georgia, description of cottage-type, 1427
grandmother-buddy system in, description of, 1423
habilitation and rehabilitation in, 1418
in Illinois, 1357
cottage-type, 1428
in Ireland, 1352, 1353
in Israel, vocational habilitation and, 1420
life expectancy of Ss in, intelligence level in relation to, 1417
in Malta, 1429, 1435, 1436
metabolic error screening in, 879
in Minnesota,
standards for, 1416
music therapy, 1317
in Oklahoma, 1434
personnel training in,
summer work program, 1391
private institutional network, establishment of, 1390
psycho-social development and, 1406
in Puerto Rico, 1413
recreational activities in, 1443
soap box derby, 1424
research,
behavior modification, 1269
categorization of residents, WISC c/w DAP, 1160
operant conditioning training program, 1265, 1419
predictors of community job efficiency, 1299
role of, in comprehensive treatment program, 1409
speech therapy, for SMR and TMR, 1311
in United States, 1351
in Wisconsin, state aid committee organization in, 1421
Respiratory disorders (See Lungs)
Respiratory distress syndrome
etiology and treatment of, 765
in immature infants, heart-lung apparatus for prevention of, 767
lung changes in, 768, 769
surfactant deficiency and, 764
mortality in, hospital protocol for management of, 766
treatment of, 1076
Rh incompatibility (See also Blood)
amnion fluid in diagnosis of, 736
amniotic fluid spectrophotometric analysis in relation to, 735
carboxyhemoglobin in blood in relation to, 745
diagnosis, symptoms, and treatment of, 730, 731, 733, 734
exchange transfusion for, 737
contraindication to, 747
immunization,
prevention of, anti-Dγ-globulin in, 730, 731, 732, 733, 734
Ribamicol
effect on learning in PKU rats, 794
Roentgenography (See Radiography)
Rubella
congenital, 707
congenital infection of mother in etiology of, 706
immunoglobulin disorder and, 705
malformation fr, 708
developmental effects of,
in rabbits, 717

epidemiology of,
susceptible population in United States, 716
vaccine for, evaluation of, 709, 710, 711, 712, 713, 714, 715
Rubinstein-Taybi syndrome
abnormalities in, 942, 943, 944, 946, 947, 948, 949
variant,
facial, 945

Schizophrenia (See Psychiatric disorders)
Scleroderma
PKU and,diet effect on, 795
Sclerosis
tuberous,
radiographic findings in, 902
Scotland
day-care programs in, 1371
education,
for CP, 1225
Seckel's syndrome (See Dwarfism)
Self-concept
improvement in, child-care program and, w/ slow learners, 1295
Self-mutilation (See Behavior; Lesch-Nyhan syndrome)
Senior Citizens
in programs for aged MR, 1361
Sex
behavior,
pedophilia, etiology of, 1139
of SMR, 1133, 1134, 1135
male,
emotionally disturbed, treatment of, w/ film and group therapies, 1310
ratio, in children w/ functional articulation disorders, 1312
verbal conditioning and, 1107
Sheltered workshops (See Rehabilitation, vocational)
Sialic acids
metabolism,
disorder, in association with Hurler's syndrome, 872
Skin
anomalies,
in bird-headed dwarfism, 928
congenital, 941
ichthyosiform erythroderma, 951
histidase in, in histidinemia, genetics and, 819
Petges' poikilodermatomyositis, MR and, 962
ulcers,
in hydrocephalic children, treatment of water pillow, 916
Skull
bifida, spina bifida and, embryonic neuroschisis in relation to, 918
in Crouzon's syndrome, 929
in holoprosencephaly, endocrine dysgenesis and, 919
in homocystinuria, 810
temporal bone of, abnormalities in gargoylism, 871
Sleep
of newborn,
EEG of, 677
REM, in autistic children, 1148
Smith-Lemli-Opitz syndrome
congenital anomalies in, 933, 934
heart disease (congenital) in, 932
Smoking
effect on fetus and newborn, 756
Social relations (See also Adjustment/personal-social)
in autism,
effects of visual input on social responses, 1154
maturity of,
pedophilia and, in MRs, 1139
of overactive, inst. SMRs, 1090
success in, personality factors and, 1130
Social work
in Ireland, 1501
in university affiliated facility program in Florida, 1381
Sociocultural factors
deprivation,
auditory and visual perception, teaching methods and, 1231
b.i. and MR and, 1187
education methods for, 1209, 1212
preschool, 1215
remedial, 1211
language and, 1238, 1242
development program, 1242
stimulation program, assessment of, 1169, 1234, 1235, 1237
learning potential and, evaluation of, 1177, 1181
perceptual and cognitive problems in, treatment of, 1118
psychological testing of, in a Head Start program, 1185
vocational rehabilitation success prediction in, 1288
in Down's syndrome in Israel, 1014
in failure-to-thrive in infants, 888, 889
language (oral),
stimulation program effect on, 1239
MR and, 970, 971, 972, 973, 974, 975
PKU in Negro and, 778
reading programs in relation to,
comparison of, 1234, 1235, 1256
social class,
growth patterns and, 1078
verbal abstracting ability and, 1091
Socioeconomic factors
in infant morbidity and mortality in Pakistan, 770
in lead poisoning in children, 749, 750
MR and, 614, 634, 635, 636, 637, 638, 970, 971, 972, 973, 974, 975
Wisconsin programs for MR prevention in relation to, 1359
paired associate learning and, 1103
social mobility, of high school dropouts, 1143
Sociology
of community attitudes towards MR and slow learners, 1379
of residential care facilities, animal ecology in relation to, 1411
Sodium
amnion transport of,
fetal hydramnios in relation to, 1071
pregnancy disorder and, 1073
South Dakota
spec. ed. and vocational rehabilitation services in, 1289
Spain
guardianship for MRs in, 1397
Speech (See also Communication; Language; Psycholinguistic abilities)
in autism, 1106
comprehension and use, 1150
development of, 1153
operant conditioning program for, 1276
disorders,

in specific MR conditions, 1122
vowel dipthong distortions, distinguishing features of children w/, 1312
therapy,
in education, 1484
for inst. TMR and SMR, effects of, 1311
Sphingolipid
cerebroside, metabolic disorder of, 844
in spleen in Gaucher's disease, 846
Sphingomyelin (See Sphingolipid)
Spielmeyer-Vogt disease (See Lipoidosis, cerebral)
Spina bifida
embryonic neuroschisis in etiology of, 918
treatment of,
surgery, prognosis of, 917
Spinal cord
bifida, embryonic neuroschisis and, 918
chemical composition of,
in Friedreich's ataxia and motor neurone disease, 957
disorder,
in ataxia telangiectasia, 961
inclusions,
in metachromatic leukodystrophy, 954
Spine
disorders,
neurofibromatosis in association w/, 904, 905
Spleen
in Gaucher's disease,
cerebrosides in, 846
hydrolase in, 847
Steroid (See specific compounds)
Streptococcus (See Bacteria)
Sturge-Weber-Dimitri syndrome (See Angiomatosis)
Sugar
metabolism of, disorders of, in malnutrition, 893
Sulfadiazine
in bacterial meningitis treatment, 713
Sulfonylurea
in diabetes treatment, toxicity of, to fetus and newborn, 754
Surgery (See specific disorder)
Sweden
education (special) legislation in, 1376
legislation on MR in, 1341
SMR in, 617
Syndrome, new (See also specific syndrome)
cholestasis,hereditary recurrent intrahepatic, in newborn, 838
cystathioninuria variant, 826
depressed and pitted skin, facial tumors, syndactyly, and other congenital anomalies, 941
dysmorphogenesis of joints, brain, and palate, 940
hyperdibasicaminoaciduria, 820
hyperpipecolatemia, 812
hypertelorism, microtia, and facial clefting, 950
methylmalonic acidemia, 825
w/ unilateral ichthyosiform erythroderma, 951

Tangier's disease (See Lipoprotein)
Tay-Sachs' disease (See Lipoidosis, cerebral)
Teacher
attitude,
student achievement level and, 1488, 1489
financial support for,
fr Education Professions Development Act, 1345
instructional methods for, 1213
recreation, as special educator, 1497
role of, error in curriculum development and, 1196
in spec. ed., 1500
attitude toward parent, 1490
effectiveness of, experience in relation to, 1496
student achievement level and, 1498
training, 1492
inservice in, 1493, 1494, 1495
for spec. ed., 1226, 1485, 1486
videotapes, 1491
Technetium
in hypothyroidism diagnosis, 859
Telangiectasia (See Ataxia)
Tennessee
legislation in, insurance for handicapped, 1342
Teratology (See also Abortion; Infant)
cyclamates and, 1060
sulfonylurea derivatives and, 754
Testes (See Gonads)
Testing (See also specific area)
actuarial techniques and, validity of, 1157
of blind and deaf children, 1192
of CP adults, cognitive performance of, 1167
of exceptional children, conceptual framework for, 1205
functional evaluation, via occupational therapy, 1173
of hearing, operant audiometry manual for, 1174
of learning potential,
in EMRs, 1195
of TMRs, 1179
methods of,unitary c/w particularistic, 1191
neurological, tree-test, brain tumor diagnosis and, 908
of non-MR CP adults, on perceptual-constructive tasks, 1166
normative data on, on Benton Visual Relention test, 1164
overview of problems of, w/ MR, 1188
of parents of MR, w/ MMPI, 1461
to predict adult adjustment, 1157
psychological, 1182
for MR and neurological disorders, 1193
of psychoneurological functioning, 1194
reliability,
of direct test and informant-interview versions of the Utah Verbal Language Development Scale, 1170
interscorer, of Wechster Intelligence Scale for Children, 1158
parent evaluation c/w staff, 1324
test comparison, 1160, 1178, 1233
Peabody Picture Vocabulary Test c/w Developmental Test of Visual Perception, 1163
validity of, 1178, 1187, 1191
of Draw-A-Person Test, 1160
of Junior Eysenck Personality Inventory, w/ Indian EMR, 1155
of Rimland Diagnostic Check List for Behavior-Disturbed Children, 1156
of Wide Range Achievement Test, w/ adult MR, 1161
Testosterone
excretion by mongoloids, 1033
Tests/Developmental and Intelligence
Apgar Test, 687
Benton Visual Retention Test, 1164
Coloured Progressive Matrices, 1178
Developmental Test of Visual Perception, 1163
Draw-A-Person Test, 1160
Halstead Neuropsychological Test Battery, 1190

Illinois Test of Psycholinguistic Abilities, 1168, 1169, 1178
Learning Potential Assessment Device, 1177
Meeting Street School Test for Learning Disorders, 1194
Modified Prognostic Reading Test, 1178
Peabody Picture Vocabulary Test, 1163, 1178
reliability w/TMRs, 1162
Pictorial Test of Intelligence, 1178
Primary Mental Abilities Test, 1178
Trail-Making Test, 1190
Wechsler Adult Intelligence Scale, updating of inst. norms for, 1159
Wechsler-Bellevue Scale, 1190
Wechsler Intelligence Scale for Children, 1158, 1190
Wide Range Achievement Test, 1161
Tests/Language
Utah Verbal Language Development Scale, 1170
Tests/Metabolic (See specific disorders)
Tests/Personality
Bristol Social Adjustment Guides, 1155
Junior Eysenck Personality Inventory, 1155
Minnesota Multiphasic Personality Inventory, 1190, 1461
Rimland Diagnostic Check List for Behavior-Disturbed Children, 1156
Tests/Vocational
reading-free, 1300
3a,4,5,6-Tetrahydrosuccinimid[3,4-b]-acenaphthen-10-one
in treatment of convulsions, 997
Theory
discrimination learning, 1121
Therapy (See under specific area)
Thiamine
deficiency, brain disorder and, 887
Thioridazine
effects of prolonged treatment w/, on rats, 1307
in treatment of hyperactivity and stereotyped behavior, 1306
Thyroid gland
disorder,
brain development and, 864
in Down's syndrome, 1030, 1031
autoimminity, 1027
diabetes and, 1034
Thyroxine
in hypothyroidism treatment, cholesterol metabolism and, 860
Toilet training (See Adjustment/personal-social; Behavior; Learning)
Toxicity (See Poisoning)
Toxoplasmosis
epidemiology, etiology, and prevention of, 693
occurrence in sibs, 692
Trace elements (See specific elements)
Transfusion
exchange,
body heat loss in, 738
in hyperbilirubinemia,
contraindications to, 747
intestinal disorder in newborn fr, 739, 740, 741
plasmapheresis in, in hepatitis encephalopathy in children and adolescents, 748
in Rh hemolytic disease, 737
in placenta abruptio,
indications for, 762
Tri-State Comprehensive Planning in Mental Retardation
religious survey by, 1400
survey of attitudes toward MR by, 626
Tuberous sclerosis (See Sclerosis)
Tumors (See also specific headings)
brain,
neurological testing for, 908
in children,
EEG and, 680
schwannoma,
in Noonan's syndrome, 1045
of skin, congenital, 941
Turner's syndrome
endocrine disorders in, 1050
gonadal dysgenesis and short stature in, 1048
Tyrosine
in blood in excess, 789
diet and, 790
brain response to excess, 786
metabolism of,
disorders of,
inborn, 805

Ultrasonography
two-dimensional,
brain scanning by, 673
Umbilical cord
prolapse, fetal, infant, and maternal damage in, 771
UML-491
chromosomal anomalies and, 1061
Union of Soviet Socialist Republic
spec. ed. in, effects of, 1203
United States
education in,
legislation for, 1343, 1344
Federal agencies in,
employment of MRs by, 1360
malnutrition in, 634, 635, 638, 639
misconceptions about MR in, 625
MR legislation in, 1345, 1346, 1347, 1348, 1349, 1350, 1354, 1355
MR services in, 1351
rubella susceptibility in, 716
teacher financial support in, 1345
University affiliated facility
architecture and, 648
education training program in, 1383
medical services of, 1382
nurses training in Florida, 1475
programs and services of, in Florida, 1380
social work program of, in Florida, 1381
Uric acid
in blood in excess,
2-ethylamino-1,3,4-thiadiazole effect on, 816
neurological disorders in, 813, 814
in urine, in Lesch-Nyhan syndrome, 817
Urine
acetone in, in pregnancy, infant IQ and, 752
amino acid excess in,
in cystinosis,
diet effect on, 827
eye disorder in, 821
dibasic amino acid excess in, genetics of, 820
galactose in, in infant, assays for, 1070
in metabolic error mass screening tests, 879
uric acid in, in Lesch-Nyhan syndrome, 817

Vaccination
against measles, mumps, and rubella, single vaccine for, 703
for measles, subacute sclerosing panencephalitis fr, 704
for rubella, evaluation of, 709, 710, 711, 712, 713, 714, 715
Van Bogaert's disease (See Leukoencephalitis)
Virus (See also Rubella)
CNS infection by, 722
cytomegalovirus, in infants,
diseases associated w/ , 696
kidney disorder and, 695
screening for, 694
echovirus 9, meningitis fr, in Israel, 725
Herpes simplex, in infants and children , mortality in relation to, 697, 698, 699
infection,
control of, review on, 721
diagnosis of, 719
measles, vaccine for, subacute sclerosing panencephalitis fr, 704
mumps,
hydrocephalus as sequelae of, 909
vaccine for, side effects of, 693
neurological disorders fr, 701
picorna, Australian antigen and, 729
respiratory disorders in children and, 720
vaccination for, 703
varicella, in children, mortality fr, 700
Vision (See Eye)
Vitamin
A,
in dietary treatment of metachromatic leukodystrophy, 952
D,
excess in diet, hypercalcemia in newborn in relation to, 884, 886
in hypo-hyperparathyroidism treatment, 857
in pseudohypoparathyroidism treatment, 855
Vocational rehabilitation (See Rehabilitation, vocational)
Volunteer Program (See Community Program)
Von Recklinghausen's disease (See Neurofibromatosis)

Weight (See Development; Infant)
Welfare programs (See Community program; Protective services)
Wildervanck syndrome
cervico-oculo-acoustic dysplasia, 931
Wilson's disease (See Hepatolenticular degeneration)
Wisconsin
inst. in, state aid committees in, 1421
MR prevention programs in, poverty in relation to, 1359
World Health Organization
recommendations of, 629
Wyoming
community programs in, 1386

X-ray (See Radiography)

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